

## GYNECOLOGY

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### Some Aspects of Sterility A Report of 300 Cases

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This paper is a statistical analysis of 300 cases of sterility recorded in cross index and investigated in the Department of Obstetrics and Gynaecology of the Winnipeg Clinic from the year 1942 to August of 1948. There were probably considerably more in cross index which were missed because of their inclusion under another diagnosis. Our findings are compared to those of similar reports found in the recent literature.

Many cases for various reasons were not completely investigated, but all were included to increase the values of the percentages quoted for many of the factors involved.

The term sterility is hardly correct, for a couple is not considered barren until proven to be so by adequate examination. Infertility is a better term. Siegler considers the fertility of an individual as 10 and the fertility of a couple as 10 x 10 or 100. He estimates the fertility index of a couple from his investigation and attempts to raise their fertility index to an optimal level. Frosst states that 13-17 per cent of all marriages are barren. Margaret Moore White quotes 10-12 per cent. From these figures one can readily see that the problem of sterility is one of prime importance and one that is quite common in gynaecological practice.

Two main objects are pursued with an infertile couple. Firstly, an attempt is made to rule out any insuperable barriers to conception such as azoospermia, blocked oviducts, or failure of ovulation, but there is more to the problem than potent males and patent tubes. Secondly, and in conjunction, one tries to correct any pathological, physiological, social or psychogenic factors that tend to lower the fertility index. In most cases that one sees, it is rarely any one factor, but rather a combination of many factors that is at fault.

One's investigation should include a complete history and physical examination with emphasis on those aspects which are most intimately related to the problem at hand.

In the female the history should include such particulars as the occurrence of pelvic infections, abdominal operations, venereal disease (particularly gonorrhea). A detailed menstrual and obstetrical history with emphasis on post partum and post abortal fevers is essential.

The number of siblings and their issues, duration of marriage, length of sterility, mode of contraception practised, and frequency of intercourse are some of the many questions to be asked. A complete physical, including pelvic examination is done on all patients. Minimal laboratory requirements are: Blood examination, urinalysis and Basal Metabolic Rate. The latter is particularly important for most authorities agree that hypothyroidism is an important factor in sterility and one that is easily corrected.

### I.

In the present series the average duration of marriage was 7.4 years, ranging from 9 months to 21 years. The average duration of sterility was 4.4 years, ranging from 4 months to 21 years.

Most investigators do not consider a couple barren unless they have been attempting unsuccessfully to conceive for from 1-3 years.

In our series we allowed the patient to make the diagnosis and corrective measures and investigation were instituted as we saw fit, for it is generally conceded that the sooner treatment is started, the better are the results.

The average age of the women in the 300 cases was 27.4 years, ranging from 21 to 43. Of 69 men, the average age was 35.4 ranging from 18 to 50.

Table I

#### 300 Cases of Sterility

Duration of Marriage .....	7.4 yrs. 9 mos. - 21 yrs.
Duration of Sterility .....	4.4 yrs. 4 mos. - 21 yrs.
Age:	
Average of Woman (300 cases) ..	27.4      21 - 43
Average of Man (out of 69) .....	35        18 - 50
Primary .....	225      75%
Secondary .....	75       25%
Follow-up of 6 months or more:	
96 cases .....	36 Pregnant or 37%

Table II

#### 300 Cases

Constitutional .....	80
Anaemia .....	31
Grossly overweight .....	27
Grossly underweight .....	5
Mumps as adults:	
Female .....	4
Male .....	1
Lues .....	1 couple
Gonorrhoea:	
Female .....	1
Male .....	2
Tuberculosis of spine .....	1
Osteomyelitis of symphysis pubis ..	1
Pernicious anaemia .....	1
Disseminated sclerosis .....	1
Pulmonary tuberculosis .....	2
Sterilization and repair .....	1

80/300 or in 26.6%

In Mazer and Israel's series of 695 cases the average duration of sterility was 4.6 years and the average age of the woman was 29.4 ranging from 20 to 39.

In our series, 75 out of 300 cases (or 25%) were of secondary sterility, i.e. the patients had already been pregnant on at least one occasion. Mazer and Israel's give 143 out of 695 as secondary, a figure slightly lower than ours. A large percentage in our series with secondary sterility had had one or more miscarriages, 34 out of 75 or 45 per cent.

Unfortunately, out of 300 cases, only 96 had a follow-up of 6 months or more; of these 36, or 37 per cent became pregnant.

A proper approach to the problem of infertility should include a breakdown of the various factors involved so that each one may be assessed and proper importance given to its role in the cause of the infertility.

This series could be broken down into seven sub-groups: 1, Constitutional factors; 2, Pelvic abnormalities; 3, Cervical factors; 4, Tubal factors; 5, Endocrine factors; 6, Male factors, and 7, a hodge-podge of unclassified items including incompatibility of the husband and wife, no known cause, faulty sexual habits, etc.

Under the heading of Constitutional causes, which may or may not be of significance: only 31 out of 300 were found to be anaemic, 27 were grossly overweight and 5 were markedly underweight. No definite relationship has been established between obesity and sterility but it is our impression and that of others that it does seem to lower an individual's fertility, perhaps as a cause or effect in diminished function of those endocrine glands associated with procreation.

In 109 cases the past history was negative. 4 females and 1 male had mumps as adults. 1 couple had syphilis. 2 males and 1 female gave a history of gonorrhoea; 1 had tuberculous spine; 1, osteomyelitis of symphysis pubis; 1, pernicious anaemia; 1, disseminated sclerosis; 2, pulmonary tuberculosis; 1, sterilization and vaginal repair.

From these statistics it would seem that 80 out of 300 cases or 26.6 per cent of cases of sterility have a constitutional factor which may or may not be of consequence.

## II. Pelvic Abnormalities

Only 5 per cent in Mazer and Israel's series had gross pelvic lesions. We are including all deviations from normal found on pelvic examination, for it is difficult to assess a causal relationship and it is better that all should be included.

In almost 50 per cent, 154/300, pelvic examination was found to be negative

Cervical pathology will be discussed later under cervical factors.

Fibroids, or "spinster's children," may cause sterility by pressing on the interstitial portion of

the tube, sub-mucous fibroids may cause a healthy endometrium which will not form an available nidus for the fertilized ovum.

There were 60 cases in which the uterus occupied a position other than normal anteversion. Frosst, in his series, treated all cases of retroversion with pessary. In our opinion retroversion is not significant as a causal factor in infertility although we believe that perhaps the receptum seminis may not be as accessible and for this reason advise lying on the face after coitus.

Table III

### Cervical

Cervical Erosion .....	
Endocervicitis .....	
Cervical Polyp .....	
Small conical cervical os .....	

### Corporeal

Fibroids .....	
3° retroversion .....	
2° retroversion .....	
1° retroversion .....	
Retroflexion .....	
Fixed retroversion .....	
Retrocessed uterus .....	
Dextroposed uterus .....	
Sinistral position .....	
Acute antelexion .....	
Hypoplasia of uterus .....	
Double uterus and vagina .....	

### Ovarian

Prolapsed ovaries with dyspareunia .....	
Ovarian cyst .....	
Endometriosis .....	

### Tubal

Adnexal thickening .....	
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### Vaginal

Infected Bartholin glands .....	
Vaginismus .....	
Trichomonas infection of vagina .....	

### Vulval

Leukoplakia vulvae .....	
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A fixed retroversion is important because of its usual association with pelvic inflammatory disease. Acute antelexion is so often associated with hypoplasia that it may be significant for this reason.

R. T. Frank declares that in 30 women with congenital sinistro-position of the uterus who were trying to conceive, only 1 had a child. He publishes this report as a problem for speculators and does not advance any theories as to the cause for the high incidence of sterility in these women.

Hypoplasia will be discussed under endocrine factors.

arian cysts or prolapsed ovaries with dysmenorrhea may interfere with ovulation due to pressure and congestion of the ovaries.

From these statistics we can state that pelvic abnormalities were present in 50 per cent of our cases.

### III. Cervical Factors

It appears that the most important omission in our investigation which is included in other reported series is the matter of the insemination of the cervix. This appears to be the problem which is attracting the most attention at present and in particular that part concerning the patency of cervical secretions. We found that 45 per cent of our cases demonstrated cervical pathology and treatment of endocervicitis or cervical erosion by cautery or electro-conization was the main procedure carried out in 10 or 29 per cent of those who became pregnant. In our 300 cases, 50 out of 100 or 50 per cent had a cervical factor. Dr. Carey, of New York Hospital, states that 25 per cent of his sterility cases were due to abnormalities of cervical mucus. Mazer and Israel state that in 32 per cent of their cases, faulty insemination of the cervix was totally or partially responsible. Also included under faulty insemination are: relaxation of introitus, vaginismus, premature ejaculation and dyspareunia.

The outpouring of cervical alkaline mucus during the ascent of spermatozoa and it is felt that orgasm on the part of the woman increases the secretion of this mucus.

Dr. Barton and Wiesner postulate that impregnation depends upon the ability of spermatozoa to penetrate the interface between two colloids, the mucus and the cervical mucus.

The Kuzrock Miller Lytic test consists in placing semen and cervical mucus on a slide and viewing under the microscope the penetrating ability of the spermatozoa.

Three factors determine the suitability of cervical mucus for impregnation: 1, capacity to support the motility of spermatozoa; 2, capacity to support sperm life; 3, its invadability.

Pre-coital alkaline douches were prescribed in 10 per cent of our cases that became pregnant. The results of the Huhner's test and the determination of vaginal pH might be profitably included in future investigation.

### IV. Tubal Factors

Out of 300 cases, a combined total of 156 insufflations and salpingograms were done.

10 per cent of our pregnancies resulted 1 to 3 months after a Rubins Test or Salpingogram was done. From this we are led to believe that these procedures may have a definite therapeutic value as well as being essential diagnostic tests. In fact

they seem to be one of the most important single factors in our treatment.

Table IV

#### Insufflation Alone—103

Patent .....	84*	81.5%
Blocked .....	16	15.5%
Blocked (subsequently patent) .....	3	2.9%

#### Salpingogram Alone—28

Blocked .....	10	35.7%
Patent .....	13	46.5%
Left patent, right tube blocked .....	5	17.9%

#### Combined Insufflation and Salpingograms

Patent at insufflation and salpingography .....	4
Blocked at insufflation and salpingography .....	3
Salpingo-patent, Rubins blocked .....	2
Rubins patent, Salpingo blocked .....	2

\*12 with spasm or stenosis.

In general, a Rubins test is done and if this demonstrates blockage or spasm, or stenosis, a salpingogram is taken. However, individual preferences within the department vary this routine. The Rubins test is somewhat less troublesome and equally efficacious in determining patency, but a salpingogram will localize the site of obstruction and also provide a permanent visual record.

The main cause for tubal occlusion is usually declared to be previous gonorrheal or post abortal salpingitis—other causes listed are: congenital kinks and adhesions, mucus plugs, adenomyosis of the tube, intramural fibroids near the interstitial portion of tube, and closure due to retroversion and kinking of the tubes.

One also should take a detailed history of previous pelvic or abdominal surgery for infection with resultant adhesions might conceivably cause tubal blockage.

In the past history of those who showed blocked tubes, spasm or stenosis, 26 had a negative past history. There was history of:

- 2 Ruptured appendices
- 2 Gonorrheal salpingitis
- 1 Bartholin abscess
- 2 Post abortal salpingitis
- 1 Post partum salpingitis
- 1 Plastic operation on tubes
- 4 Appendectomies
- 1 Appendectomy and salpingectomy
- 2 Appendectomy and oophorectomy
- 1 Ectopic pregnancy
- 1 Attack of lower abdominal pain with fever (Salpingitis?)

Figures varying from 18 per cent to 56 per cent for tubal factors are quoted. In our series out of 156 cases studied, 24.4 per cent had a marked tubal factor in their sterility. There was no obvious reason why in 5 or 17.9 per cent of our salpingograms that the left tube was patent and the right blocked and in no cases was it vice versa. I do not believe anyone else has had a similar exper-



ience and the numbers are too few to permit any conclusions being drawn from them.

### V. Endocrine Factors

The problem of endocrine factors in sterility can be simplified by approaching it from the point of view of their effect on ovulation and spermatogenesis. In the female, 4 main types of endocrine disturbance can effect ovulation: pituitary dysfunction, ovarian failure, failure of the end organ (uterus) and hypothyroidism.

It is rare for one to see, for example, an obvious case of Frohlich's syndrome but there are many sub-clinical cases seen of all these types.

Menstrual disturbances will be included under the heading of Endocrine factors.

Table V

Menarche—Average Age, 13.2

Irregular periods	
(under 21 or over 35 days) .....	14 or 4.6%
Hypomenorrhea .....	15 or 5%
Oligomenorrhea .....	4 or 1.3%
Amenorrhea .....	1 or .3%
Infantile or hypoplastic uteri .....	19 or 6.3%

### Basal Metabolic Rates

Average Rate—2.7%

Minus readings .....	110
Plus readings .....	57
O readings .....	3
Above +10% .....	22 or 12%
Below -10% .....	47 to 27%

Endocrine factor in 100/300 or 33%.

Nineteen cases out of 300 were found on pelvic examination to have a hypoplastic uterus. Naturally this is not a definite criterion for hypoplasia and it is felt that the cervico-uterine index as determined by sound is more accurate an estimate of infantile uteri. If the reduction of the normal 1:2 cervico-uterine index is found, one can be reasonably sure that there is a failure of the end organ's mature development. Unfortunately this method was not followed in many cases.

As a test for ovulation, patients were instructed to take their basal temperatures and endometrial biopsies were taken on the first day of menstruation in some cases.

Of 22 endometrial biopsies, all showed a lutein phase, indicative of ovulation. Basal temperatures were extensively used but only 13 were recorded in the history. Of these, all showed a rise in temperature at about mid-cycle, evidence of ovulation.

A total of 170 Basal Metabolic Rates were done with an average rate of -2.7 per cent. There were: 110 Minus readings, 57 Plus, and 3 - 0. There were 22 or 12 per cent above +10 and 47 or 27 per cent below -10. We found hypothyroidism quite prevalent amongst our cases and in 11 or 30 per cent of those that subsequently became pregnant, thyroid was the sole, or one of the main, therapeutic

agents. Of our total of 300 cases, 74 had therapy, gr. ss - ii a.m.a.c. Other hormones were Cyclic therapy with Dienoestrol and (oral progesteron) for hypoplastic uterus, oligorrhea, hypomenorrhea and irregular periods, amenorrhea. In one of those who became pregnant this was the main treatment. Two were given Testosterone to improve their condition with effectual results. This gave us 100 per cent of cases in which there was an endocrine factor.

Rubin states that there are two endocrine substances which apparently do have a beneficial influence on sterility: thyroid extract, especially in menstrual abnormalities and a depressed metabolic rate; and estrogens, which according to Margaret Moore White stimulate tubal increase tubal vascularity and possibly adhesions. Thyroid also has a trophic effect on the ovaries and a beneficial effect on metabolism. Estrogens are also reputed to increase cervical secretion.

According to Rubin, "All efforts to increase specifically potent pituitary extract to stimulate follicle maturation in women have failed," and he also adds, "No hormonal substance alone or in combination has as yet been convincingly demonstrated to induce ovulation of the kind which spontaneously occurs in women."

Rubin deplors the present attitude of "endocrine" therapy to the exclusion of other methods of the sterility investigation. We are in agreement with his views and have found that the use of endocrine treatment are still equivocal.

### VI. Male Factors

Before subjecting the wife to detailed and expensive investigation and treatment, we consider it mandatory that an examination of the husband's semen be done by our urological department. Figures generally quoted implicate sterility to the male in from 25 to 50 per cent cases. In our series, out of 88 semen analyses 67 per cent were fertile, 20 per cent subnormal and 12 per cent sterile, a total of 33 per cent which there was a male factor. Two were from subnormal to a fertile level, one with and one with A.P.L. In one case of a sterile husband, the wife became pregnant but, of course, we cannot attach too much importance unless we carefully considered the moral health of the wife.

A difficulty in the investigation of the male factor is that many men consider it a challenge to their virility and masculinity that they are unwilling to accept. Another detriment to sterility studies is the popular fallacy that ability to delay coitus connotes fertility. A compromise is reached by the wife bringing in the semen



The Urology Department advises abstinence coitus for from 2 to 3 days, intercourse at and that the specimen be submitted one or last two hours after collection. Collection is accomplished by masturbation or coitus interruptus with ejaculation into a clean wide-mouthed Condom specimens, even if the condom is used, are not considered reliable. Some causes of unfavorable semen analysis are: excessive alcohol, nicotine, too frequent coitus, a history of acute fever, mumps, exposure to x-ray, gonorrhea or syphilis, undescended testicles, exhaustion, overwork, pressure as by hydrocele, etc. A male should have a fertility index of 10 if there are 100 million sperms per cc., a volume of 2 cc., no more than 20 per cent abnormal forms and 90 per cent of sperms are motile. They may be fertile without these requisites, indeed as long as there is a single spermatozoon present, there is a chance of conception, but the lower the sperm count, the higher must be the wife's in order to obtain results.

## VII

Under heading number seven are a number of classified items which did not fit into any of the preceding VI divisions.

Sterility is often the result of natural variation or incapacity of the ova to unite with the particular strain of spermatozoa with which they are "mated." Many is the couple in which absolutely no cause can be found for their infertility and we attribute it to this **or else conjecture that there are many aspects of sterility of which we are ignorant.**

Age is an important factor. Balfour found that women of the age of 20, it required 200 copulations per pregnancy and in a woman of 40 it required 1,500 copulations per pregnancy.

Diddle, Jack and Dearse, in a study of 1,192 married women who did not practice contraception and who had intercourse 2 to 3 times per week found the average length of time for pregnancy to ensue was 12 months. In our series out of 47 cases, intercourse was practiced on the average of 2 to 3 times per week.

For each year of contraception, 2 months are added to the length of the time it requires a patient to conceive. 36 per cent or 59 out of 163 couples practiced contraception for some period of their married life. The commonest method was diaphragm or condom, much less common are coitus interruptus, douches, or contraceptive jelly.

It is often noted that a couple desperately anxious for offspring and who have finally given up all hope and have adopted a child, sometimes will achieve a pregnancy. Many cases are cited where a rest, a trip, or change of employment will be rewarded with a pregnancy. It is all these factors which makes one feel that we are still working on the fringe of knowledge and that the future may present many enlightening facts regarding this fascinating subject.

## Treatment

Perhaps most important of all are the results of treatment in our cases.

In those who had a follow-up of 6 months or more there were 36 out of 96 cases or 37 per cent. Of these there were 32 full term pregnancies including 2 sets of twins and 4 abortions. Frosst states that the abortion rate is much higher amongst sterility cases and treats all his cases as potential aborters.

Operative treatment was considered necessary in 7 per cent of the total 300 cases

## Individual Cases

P.	G.	S.	Findings:	Rx:
0	0	5 yrs.	Blocked Rubins, retroversion with dyspareunia	Rubins and gr. i thyroid Ventral suspension.
0	0	2		Rubins 100 mm. Rhythm.
0	0	7½	—21% B.M.R. Hb 69%	Fe, Thyroid gr. ss. Rhythm.
0	0	½	Hb 71%. Cervical Erosion	Fe. Cautery. Rhythm.
0	iii	2	Rubins O.K. Cervical Eros.	3 months pre. Cautery. Rhythm.
i	i	6	Hb 67%	Fe. Rhythm.
i	i	4	B.M.R. —12%. Rubins O.K.	Thy. Gr. i same month. Rhythm.
0	0	2	D. & C. Rubins	Same month. Rhythm.
i	i	10 mos.	Retroversion. Dyspareunia. Cervical polyp.	Pessary removed. Rhythm.
0	0	7 yrs.	Rubins. Cervical Erosion	1 month pre. Cautery, p.c.a.d. Rhythm.
0	0	10 mos.	D. & C. and Rubins 190 mm. B.M.R. —16%	1 month pre. gr. i.
0	0	9 mos.	Salpingo	1 month pre. Rhythm.
0	0	9 mos.	Rubins O.K. B.M.R. —14%	3 mos. pre. gr. i. Rhythm.
0	0	2½ yrs.	None	Rhythm.
0	0	1	None	Rhythm.
0	0	1	B.M.R. —10%	Gr. i. Rhythm.
i	i	6 mos.	Rhythm	p.c.a.d.
0	0	4 yrs.	Sterile semen	Rhythm.

Hotchkiss advice in oligospermia, to abstain from intercourse for 2 weeks, none except at ovulation time preceded by pre coital alkaline douche.

	P.	G.	S.	Findings:	Rx:
(19)	0	0	5 yrs.	Hb 60%. Salpingo patent. Semen fair, B.M.R. + 63%	Fe Rhythm.
(20)	0	ii	3	None	Rhythm.
(21)	i	i	2	Lacerated cervix. Irregular menses. Oligomenorrhea.	Cautery. Dienoestrol. P.
(22)	i	i	1	None	Rhythm.
(23)	0	0	1	B.M.R. —15% Cervical Erosion	Gr. ss. Cautery.
(24)	0	0	2	Rubins B.M.R. —10% 3° Retroflexed	Rhythm. Gr. ss. Lie on face after I.C.
(25)	i	i	1½	Rubins O.K. Hb 63% Cervical erosion Retroversion with dysp.	Rhythm. Fe. Cautery. Pessary, ortho douche, Rhythm.
(26)	i	i	11 yrs.	Hb 72%	Fe. Rhythm.
(27)	i	i	1 yr.	None	Rhythm.
(28)	0	0	4	Rubins O.K.	1 month pre. Rhythm.
(29)	i	i	2	Cervicitis	Conization. Rhythm.
(30)	0	0	3½	B.M.R. —5% Cervical polyp.	Gr. i. Removed. Rhythm.
(31)	0	0	2½	3° Retroflexed	Lie on face. Rhythm.
(32)	0	0	1½	None	Rhythm.
(33)	0	0	1	B.M.R. —16% Cervical erosion Rubins 190 mm.	Gr. i. Cautery. Rhythm.
(34)	0	0	1½	B.M.R. —6% Rubins O.K.	Gr. i ss. 2 months pre.
(35)	0	0	3	Internal os Rubins O.K.	D. & C. Rhythm.
(36)	0	0	2	Semen low normal D. & C.	Rhythm.

A figure of 36 per cent pregnancy rate compared favorably with those of others quoted in the literature.

	Cases	1 year follow-up
Sharman of Glasgow	902	30% pregnant
Procter and Dickinson	210	35% pregnant
Frosst	422	26% pregnant
Mazer and Israels	695	56.8% pregnant

In conclusion, one might mention that our pregnancy rate compares favorably to that of most centres. It is our impression that in most cases there are a number of etiologic factors and that painstaking attempts at correcting as many factors as possible gives good results. In most cases thyroid extract, Iron, cleaning up of an infected cervix, or an insufflation or salpingogram, were the most efficacious. Above all, the most important single advice to give to a barren couple is instruction with regard to the most fertile phase in the menstrual cycle. Our experience would show that it is attention to these so-called minor details that

gets results rather than any prolonged and expensive endocrine therapy or surgical correction of pelvic pathology.

#### References

1. Diseases of Women, Ten Teachers, V, E.J.
2. Siegler, Fertility in Women, 944.
3. Progress in Gynaecology—Meigs and Sturgis, 1944.
4. Fertility in Men—Hotchkiss, 1944.
5. Review of 422 cases of "sterility" in private practice. Drs. A. C. and H. C. Gordon Frosst. The bulletin of the Vancouver Medical Association, February, 1947.
6. Sterility in the Male—John Balfour. The bulletin of the Vancouver Medical Association, February, 1947.
7. Menstrual Disorders and Sterility, 2 E.D. Mazer, Israel.
8. Endocrine factors in female sterility with special reference to the question of hormonal therapy. Rubin. New York State Journal of Medicine, December, 1946.
9. Receptivity of cervical mucus to Spermatozoa—Barton and B. P. Wiesner. Brit. M.J., 2: 606-10, October 26, 1946.
10. Problem of Sterility: Its investigation and treatment. Margaret Moore White. Practitioner, 158: 279-288, 1947.
11. Some Aspects of Human Infertility—Albert Sharman. Glasgow. Br. M.J., 2: 83-87, January 19, 1947.
12. Fertility in Women: Length of time required to conceive. A. W. Diddle, R. W. Jack, R. L. Dearse, Am. J. G., 54: 57-61, July, 1947.
13. Office Study of Infertility—Ivan M. Procter and K. Dickinson. Am. J. O. & G., 53: 65-74, January, 1947.
14. Sinistraposition, Stigma of relative infertility. Frank, Am. J. O. & G., 54: 88-90, July, 1947.

## TUBERCULOSIS

### Streptomycin in Tuberculosis\*

I. D. Adamson, M.D.

Since tuberculosis is essentially incurable many measures have been advocated. Until the advent of streptomycin none of these except tuberculin made much impression. When, in 1890, Koch introduced tuberculin, he stimulated hope that a cure for tuberculosis had been discovered. Koch was a meticulous worker, completely honest and the biological tests he had done strongly suggested that his product indeed inhibited the growth of the tuberculosis bacilli in animals and man. The news of a cure created a furore among patients and the profession. Gradually and painfully it was realized that tuberculin had no significant effect on the course of the disease. But hope died slowly, and recollect that 22 years later, in 1912, tuberculin was still being given to all afebrile patients at Bellevue.

After the experience with tuberculin, tuberculosis workers were sceptical that any drug or biological product would ever kill the bacillus in man; it was feared that the lipoid coat made it impenetrable and the tendency to form relatively vascular fibrous and caseous barriers made the lesion impregnable.

So, when Streptomycin first came into use four years ago tuberculosis workers were commendably restrained in their judgment. Very soon it became apparent that almost every case treated showed improvement. Initial results were most dramatic in the fatal types of tuberculosis—meningitis and miliary tuberculosis; also it was shown in a careful study of selected cases that over 80% of fresh nodular lesions in the lung improved clinically and radiologically when first treated.

At this early stage hope ran high and it is a credit to the tuberculosis workers and drug houses of the United States and Canada that there was not a stampede among patients. The distribution of the drug was controlled and a central Streptomycin Committee was set up by the Veterans Administration of the United States which was composed of representatives of all the large organizations interested in tuberculosis. This committee has had six conferences at which all aspects of the question have been discussed. It collects and publishes the results of treatment as carried on by a large number of institutions, directs research and determines policy. As a result of its deliberation streptomycin is being more quickly and more accurately assessed than it otherwise would have

been. A similar but less elaborate plan has been used by the Department of Veterans Affairs in Canada.

To estimate the effect of streptomycin is most difficult. This arises from obvious reasons. No two cases of tuberculosis are ever the same and the course of a given case can rarely be predicted with confidence; there is apparently a great variation in the virulence of organisms; there is an infinite variation in what is called "resistance" and there are a thousand environmental circumstances that may influence the course of the disease for better or for worse. It is therefore impossible to compare cases or to get a control series. Also, the natural course of the disease usually occupies a period of years so that what takes place during any one period of a few months does not necessarily indicate what the final outcome will be. With a drug that would kill all the organisms in a short time, the effect would be soon demonstrated. But this obviously never happens with streptomycin and the problem resolves itself into prolonged and careful observation of a large number of cases.

Three facts have emerged which somewhat dampened the original enthusiasm:

1. The large doses that were first given (2-3 gm. daily) are frequently too toxic to be long continued
2. In a large percentage of cases drug resistance develops if treatment is continued beyond a month or two. Some organisms that were sensitive to 1 microgram per c.c. have become resistant to 1000 or more.
3. The initial improvement is largely illusory and is not always sustained.

#### Dosage

Since it has been found that two or more gms. a day are frequently prohibitive because of toxicity, much smaller doses have been tried. The results have been gratifying in that one gram a day rarely causes permanent damage and 0.5 gram is almost free from toxic effects. Experience with sulpha drugs and penicillin had accustomed us to think of therapeutic effect as being parallel to blood concentration. It appears that this relationship is not nearly so close in the case of streptomycin. Many observers are convinced that small doses (even a tenth of a gram) produce just as good effects as 2 grams. Some animal experiments bear this out. The actual difference in effect of of small and large doses has not yet been finally assessed. Analysis of figures suggests that large doses are more effective (Table I).

\*Delivered before the Winnipeg Medical Society, Dec. 17, 1948.



**Table 1**  
**Streptomycin—Pulmonary Tuberculosis**

No.	Dose	Time	Improved			Total
			Mark'd	Mod.	Slight	
375	2/120	120	35	30	16	81
80	0.5/120	120	23	34	23	80
60	0.5/42	120	15	30	20	65

1. Daily amount and duration of treatment.

2. Duration of treatment at time of assessment.

### Suggesting Inadequacy of Small Dosage

From 5th and 6th Streptomycin Conferences

These two groups of cases may not be strictly comparable. When streptomycin was first used an attempt was made to select purely exudative cases. Latterly, and at the same time that the smaller doses have been in vogue, more cases with fibrosis and cavitation have been included. This may partly account for the difference. Also observers may be becoming more critical and are possibly not so impressed with the initial improvement.

### Drug Resistance

The discovery of the development of drug resistance has been disturbing. It begins to take place in many cases about 30 days after treatment is started and increases with the amount of drug given. Presumably all bacilli would become resistant in time though there are records of cases in which sensitivity has persisted in spite of many months of treatment. The mechanism by which resistance is developed is still not clear; it may be due to the survival and multiplication of mutants or it may be a biological adjustment of all the organisms. When the organism becomes resistant in vitro further treatment becomes ineffective. Furthermore, evidence so far indicates that resistance to streptomycin is permanent. Thus, if we continue to create resistant strains, all the current organisms will ultimately fail to respond and streptomycin will be of no value. It would therefore seem wise to limit the amount of streptomycin to something less than what will produce resistance. This in general means that a course beyond 40 days is inadvisable.

### Relapses

The maximum effect is usually seen within the first four weeks. Almost all cases show some subjective and symptomatic improvement; those with visible or pulmonary lesions show some regression. Unfortunately this is not always sustained. Chart 2 illustrates this.

**Table 2**  
**Streptomycin—Pulmonary Tuberculosis**

Case	Dose	Time	Imp'd	Unch'd	Worse
375	1.8-2/120	4 M's	81	12	8
362	2/120	6-24 M's	47	18	35

### Showing Tendency to Relapse

From 5th and 6th Streptomycin Conferences

### Effect on Various Lesions

The effect is dramatic on shallow superficial

lesions—sinuses and tracheo-bronchial inflammation in particular. The permanency of these depends on the underlying lesion. By far the most encouraging results are on fresh exudative pulmonary lesions before fibrosis, gross caseation, cavitation. Such lesions are unfortunately rare.

Chart 3 shows the per centage of improvement that can be expected in the commoner lesions.

**Table 3**

A. Pulmonary			Improvement %		
Dose	Time	Cases	Marked	Moderate	Slight
2	120	375	35	30	16
0.5	120	122	23	34	23
0.5	42	60	15	30	20

B. Tracheo-Bronchial			Improvement %		
Dose	Time	Cases	Marked	Moderate	Slight
1-2	42-120	140	73	10	4
0.5-1	42-120	124	50	21	8

C. Laryngeal			Improvement %		
Dose	Time	Cases	Marked	Moderate	Slight
1-2	42-120	151	50	25	70
0.5-1	42-120	177	40	43	1

From the 5th and 6th Streptomycin Conferences

### Prophylaxis and Pre-operation

The usual temporary improvement that follows a course of streptomycin has, of course, proved its pre-operative use. Its use, no doubt, makes some cases more suitable for operation and prevents post-operative spread. Neither of these propositions are capable of convincing statistical proof.

### Palliation

There is a definite use for streptomycin for symptomatic reasons. Patients who are harassed with laryngeal or intestinal symptoms derive some relief even though the prognosis may be hopeless.

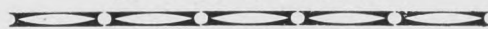
### Conclusions

1. Streptomycin is not a cure for tuberculosis but is unquestionably a most valuable adjunct to other well established forms of treatment, the Sanatorium care, pneumothorax, pneumotomy and thoracoplasty. It undoubtedly inhibits growth and is a suppressive influence which turns the tide for the patient at a critical time.
2. Toxicity and the development of resistance places strict limitations on its use.
3. The optimum dose in a given case is the largest amount which can be given without producing damaging toxic effects and without inducing drug fastness.
4. It has been suggested that in the presence of our knowledge the most reasonable dose should be 1 gm. a day for 28 days followed by an interruption of 28 days and continue these alterations for an indefinite period. This would be unlikely to produce toxic effects or drug resistance and would rapidly produce the maximum clinical benefit. Such a long range programme would seem to be most suitable for a disease whose course is measured in years.

5. The indications for use of streptomycin are being rapidly broadened. Some institutions are now prescribing it in smaller doses in practically every case.

6. Much still requires to be learned about the rational use of this drug, and only further experience will supply the final answer to all the problems that it presents.

## SURGERY



Edited by S. S. Peikoff, M.D.

### Report on Forty Cases of Vagus Nerve Resection for Duodenal Ulcer

By Richard O. Burrell and Morley Cohen

The decision to review this series of cases was made some months ago. There had been, for the few months previous to that time, a number of very warm and some decidedly unfavourable opinions expressed in the literature regarding vagotomy. While my own impression regarding the results was excellent, I felt that a thorough and independent follow-up was in order. I asked Dr. M. Cohen, of St. Boniface Hospital, to do this for me. Other than make a few minor suggestions to the wording of a routine questionnaire, I have in no way influenced his opinion or the impressions he has gained. He will report on the first thirty-two consecutive cases and I will follow up with a report of seven cases done subsequently and of one case which was lost to his follow-up.

### A Follow-up of Thirty-two Cases of Vagotomy for Duodenal Ulcer

By Dr. Cohen

This paper represents the findings of a post-operative follow-up of thirty-two vagotomies performed in this hospital by Dr. R. O. Burrell from November, 1946, to July, 1948. The longest follow-up period of this series was twenty-two months—the shortest was three months; the average was nine months. One might justifiably feel that an assessment, after such a period of time, is somewhat premature and could not yield any absolute conclusions. Be this as it may, I wish to impress upon you from the beginning that this is an unbiased summary of fact, derived from information gathered from pre-operative histories and post-operative interviews. Where these personal interviews were not possible, questionnaires were forwarded. A gratifying feature is the fact that all thirty-two of the original series were reviewed.

The overall age average of the group was forty years; the youngest patient being twenty-one; the eldest sixty-seven. However, a good thirty-three per cent were under thirty-five years of age. In all cases the lesion was duodenal and twenty per cent had manifest obstruction at the time of operation. Three types of operative procedure were

carried out. Thirty-four per cent were done by the peri-hiatal infra-diaphragmatic approach; another twenty-eight per cent were done similarly but combined with a posterior gastro-enterostomy; and the remaining thirty-eight per cent were done trans-thoracically.

Again one might criticize an operation of this type on the grounds that an adequate medical regime had not been tried first. In this series, the average duration of symptoms pre-operatively was a little over nine years. A few had had ulcer complaints recurring for twenty years while only three dated their onset to within the preceding two years. The majority, therefore, had been on various medical trials but had not greatly benefited. In addition, when one remembers that in any given series of ulcers treated medically, sixty-five per cent of the candidates relapse before two years, it is not surprising that in nine years various medical measures would have been tried. Furthermore, an appreciable number of patients were referred for vagotomy because their physicians could not keep them symptom-free on the accepted ulcer management.

Thirty-two per cent were known to have had one or more episodes of bleeding, either haematemesis or gross melena. Over one-third had symptoms of obstruction in the six months prior to operation. Of these four had 30% - 80% 4-hour gastric retention immediately pre-operatively. Three patients had had previous perforations while another three had developed intractable pain, which even hospitalization failed to relieve.

With reference to the operation, the total hospitalization period for the thirty-two cases was three hundred and twenty-three days. This does not include time spent in preparing some patients for operation. However, the number requiring pre-operative building-up (transfusion, amino acids, etc.), was small and took no longer than it would for any other type of operative procedure. In one instance the patient was hospitalized for forty-one days, in others it was only six to eight days. However, regardless of the type of operation, the average hospitalization period was ten days. The most uneventful recoveries were seen in the thirty-eight per cent of the series who had the trans-thoracic type of operation. Almost all patients were out of bed on the second post-operative day.

Four cases showed immediate complications. There were three wound disruptions (two of these were skin only)—one massive lung collapse; one small pleural effusion and one mild phlebitis. No deaths occurred.

Generally there have been three accepted complications of vagotomy:

- (1) Dysphagia.
- (2) Bouts of Diarrhoea.
- (3) Retention (fullness after meals).

As regards dysphagia; eight patients (twenty-five per cent) noted this symptom. The cardiospasm had an immediate post-operative onset and persisted in these people for an average of about three weeks. In no case did it last more than two months, nor was it severe enough to incapacitate the person or cause him to lose weight. It varied from a mild retrosternal discomfort to actual regurgitation of food particles. All noted that it gradually became less and less until it disappeared. There was no direct relationship between the cardiospasm and the amount of oesophageal manipulation at operation.

Four patients (twelve per cent) complained of diarrhoea. The first case after a twelve-month period still had almost daily diarrhoea (one to three loose explosive movements). This had its onset three months after operation. A review of his history and operation showed that actually no ulcer had been demonstrated in his case. A radiographic duodenal deformity was due to adhesions following a previous cholecystectomy; his pre-operative complaints were multiple and vague although predominately gastro intestinal. The physician who referred him had long known him to be a marked psychoneurotic, who could not hold any job he undertook or provide for his family. In any case, he was rehospitalized and given a trial on acetyl choline derivatives to no avail. After a consultation with a gastro-enterologist it was felt that his diarrhoea was likely psychogenic. The second instance is a case of six months post-operative diarrhoea. He had bouts of loose stools two to three times weekly consisting of one watery movement. However, this had steadily decreased to about one episode every week or two. The last two (of the four) cases had had diarrhoea for one month post-operative but this had completely subsided at the time of this follow-up.

The third complaint of post-prandial fullness was present in nine cases. In three of these it had completely subsided at the end of one month. In the remainder it was continually improving at the time of this review. Two cases frankly admitted that they expected to feel full because, for the first time in about ten years, they were free of dietary restrictions and were simply gorging themselves with food. A notable feature of the follow-ups was

the large percentage which had gained weight (ten to thirty-eight pounds) following operation.

One-third of the series had none of the above mentioned complaints or any others after operation.

In interviewing and writing to these cases, they were asked to classify their own opinions as to the success of the operation in each case:

Twenty-two (69 per cent) consider themselves cured.

Eight (25 per cent) consider themselves much better or better.

One (3 per cent) considers himself the same.

One (3 per cent) considers herself worse.

This last instance, where the patient considers herself worse, is that of a sister who has been in a psychotic state for the past four years and is still under her own doctor's care. She has a brachial plexus injury which gives her many bizarre complaints. Her assessment is difficult. It is unfortunate that she did not come to the hospital for a personal interview. The case, who considers himself the same, is the afore mentioned man with the marked diarrhoea. In the remaining eleven cases, which consider themselves better but not cured, one finds that the complaints are not the same—are less severe, more infrequent or have shifted to a different place. Furthermore, they are now easily controlled and do not incapacitate the patient. Two of this "better" group do consider themselves cured only because they have a mild fullness after meals but no recurrence of pain, vomiting, etc. Personally, I feel that they are cured as regards their ulcer and this being the overall cure rate approaches eighty per cent. One must, however, keep in mind the possibility of an incomplete vagal section. About one-half of the series had post-operative insulin gastric analysis and in all but two the first phase gastric secretion was eliminated. In one instance a repeat analysis after fourteen months showed a complete absence of free HCl.

### Conclusions

1. Vagotomy definitely has a place in the treatment of duodenal ulcer and should be considered more frequently as a form of treatment.

2. It is not to be considered a procedure of great magnitude and serious complications. Diarrhoea, dysphagia and fullness are almost invariably self-limited.

3. In this series it is certainly much less radical and incapacitating than the accepted forms of gastric surgery.

4. In my past eighteen months in this hospital I have had the opportunity of personally seeing a large number of these patients before, during and now after operation. I can honestly say that in this series, at least the operation has, for in



first time, given many of these patients relief for which they are genuinely thankful.

5. The careful selection of cases is, I feel, the most important single factor on which one can predict success or failure. Those, who for various reasons are constitutionally inferior and have a multiplicity of symptoms, are less likely to have a favourable result.

### Discussion and Review of Eight Additional Cases

By Dr. Burrell

It is unfortunate that space does not permit a report of each individual case. For those interested this would be most important. Dr. Cohen has complete protocols, including insulin tests and x-rays, and a graphic summary of all cases. I am sure he would be pleased to loan these files to anyone interested in their study.

Dr. Cohen missed one patient in his review of consecutive cases. Since he was an incomplete vagotomy, his case is worth mentioning.

He was a farmer of thirty-eight with rather severe ulcer symptoms of eight years duration. He had never vomited nor had he any history of hemorrhage. I performed an abdominal vagotomy in March, 1948. There was no relief of symptoms and his insulin gastric analysis proved an incomplete vagotomy. He returned one month after leaving the hospital with increasingly severe pain and symptoms of gastric obstruction. An extensive gastric resection was done and the vagotomy was completed by dividing a large, previously missed,agus trunk. The duodenal ulcer was huge—so much so that the stomach had to be divided proximal to the pyloric antrum and the antral mucosa was dissected from the muscularis down to the pylorus. When last heard from in December, 1948, this man considered himself cured.

Incomplete vagotomies are common but their failure to relieve the patients of their symptoms is not a fault of the operation but an error on the part of the surgeon involved.

In this series of thirty-two patients Dr. Cohen reports two failures, whose histories are briefly summarized as follows.

The first was a man of fifty, who for years had had dyspepsia associated with constipation. I had observed this man for two years and he repeatedly stressed the fact that, when his constipation was extreme, his dyspepsia was worse and vice-versa. His gall bladder had previously been removed in an attempt to relieve him of his symptoms. He did not have an ulcer but he had had a radiologically performed duodenal cap ever since his cholecystectomy. In desperation and in the belief that a vagotomy may relieve his dyspepsia by curing his constipation, the operation was done abdominally. Since that time he has had no dyspepsia but has

had intermittent attacks of diarrhoea. He is not pleased. The vagotomy, incidentally, was proven complete and was still complete nine months later. He had, at that time, no clinical or radiological evidence of gastric retention. Since this man had no ulcer nor true ulcer symptoms, this case can hardly be classed as a failure to cure ulcer.

The second failure was a woman of forty, belonging to a religious order. She was, and still is, in a menopausal depression and a few months previously had disrupted her brachial plexus in an accident. When I saw her, she was just recovering from her second gastro-intestinal hemorrhage from duodenal ulcer. She had many gastro-intestinal complaints, not typically ulcer in origin. I did an abdominal vagotomy which was proven complete and the ulcer was demonstrated. I have seen her many times since and she still has a multiplicity of symptoms, some of which are gastro-intestinal. She is still in her depression to the point of a real psychosis. I have tried, unsuccessfully, to have her see a psychiatrist. She has no more hemorrhages. She has been a difficult case to assess but, since she still has abdominal complaints, she classifies herself as a failure. No post-operative x-ray has been taken.

It is interesting that, in none of the patients in whom a gastroenterostomy or pyloroplasty was not done, was it subsequently necessary to do one of these operations. The decision as to whether these operations were a necessary adjuvant to vagotomy was based wholly on the x-ray evidence of 4-hour gastric retention. If this x-ray evidence is as reliable as it appears to have been in this series it would permit one to do a greater percentage of thoracic vagotomies.

I would like to express my preference for the thoracic approach. The arguments in its favour are the lowered morbidity and the decreased risk of incomplete vagotomy. The arguments against it are, firstly, the necessity for pyloroplasty or gastro-enterostomy which I feel can be determined pre-operatively, and secondly, the theoretical necessity of demonstrating the ulcer.

Since this series of thirty-two cases has been reviewed, a further seven patients have been treated by vagotomy which, in addition to the incomplete already mentioned, make a total of forty cases.

Four of these seven cases were operated on trans-thoracically and the remaining three had abdominal vagotomies plus associated pyloroplasties of the Horsely type. One of these was of more than ordinary interest. He was referred to me from Quebec by other members of his religious order with a diagnosis of duodenal ulcer of eight years standing. In the past six months his symptoms had become intractable even to hospital regime and operation had been advised. His frac-

tional gastric analysis showed very high values for free acid in all specimens and his pre-operative x-ray showed a markedly deformed duodenal cap with forty per cent four-hour retention. His symptoms were typical of ulcer. At operation no ulcer could be demonstrated even after opening the stomach and duodenum. A Horsely pyloroplasty and abdominal vagotomy were done. The vagotomy proved subsequently to be complete. This patient has been followed from September, 1948, to January, 1949, and regards himself as cured.

The remaining six cases were operated on between October 5th, 1948, and November 22nd, 1948. I have seen them all personally in January, 1949, and, with one exception, they consider themselves cured. The uncured case was a man in the fifth decade on whom I did an abdominal vagotomy and Horsely type pyloroplasty. The operation was

simple and uneventful but he had a severe haemolytic transfusion reaction on the second day and died on the third day of hepato-renal failure.

### Conclusions

In forty vagotomies there were three failures: one due to incomplete operation, one due to constipation with gastric symptoms and one due to psychopath. The remainder are pleased with the result. One died of a transfusion reaction.

I personally prefer thoracic vagotomy for the reasons given.

I am pleased with these results and feel I should proceed with this type of surgery until I have personal reasons for discarding it.

I wish to thank Dr. Cohen for the interest he has taken in this follow-up and to again point out that any interested party may go through the protocols at his leisure by getting in touch with Dr. Cohen.

## PAEDIATRICS

Edited by S. Israels, M.D.

### Hypofunction of the Adrenal Cortex in Infancy

Maurice Berger, M.D.

The adrenal cortex is considered to have three main functions:

1. Regulation of water and electrolyte metabolism.
2. Regulation of carbohydrate and protein metabolism.
3. Production of sex hormones.

Evidence suggests that the three main types of adrenal cortical function may vary independently of each other<sup>1</sup>. Support for this concept has recently been given by Jaudon<sup>2</sup> who reports a syndrome in young infants presumably caused by a deficiency of the "salt and water" hormone, the desoxycorticosterone factor. The deficiency is apparently temporary and occurs during a period of low physiological activity of the adrenal.

The clinical characteristics are as follows:

1. Onset in early neonatal life.
  2. Anorexia.
  3. Vomiting: the vomiting may be regurgitation or projectile in nature; bile is not usually present in the vomitus.
  4. Intestinal patterns are frequently seen and occasionally gastric waves.
  5. Loss of weight.
  6. Dehydration and collapse.
  7. The skin during periods of dehydration has a dirty gray color.
  8. Diarrhea is not a prominent symptom.
- Important laboratory findings are:

1. Moderate reduction in the carbon-dioxide combining power of the serum.
2. Moderate elevation of the non-protein nitrogen.
3. Normal to low serum sodium chloride in the presence of low blood volume.
4. Abundance of chlorides in the urine.
5. Normal glucose tolerance.
6. Absence of hypoglycemia.

Following the administration of desoxycorticosterone acetate and the addition of salt to the formula, there is improvement in appetite, vomiting ceases, weight gain is resumed and the electrolyte chemistry returns to normal. Jaudon suggests the use of two mgms. of D.C.A. intramuscularly daily and the addition of two gms. of salt to the formula. In older infants sublingual cortate may be substituted for the intramuscular injections. The amount of D.C.A. may be increased or decreased depending on the response. There is usually a rapid gain in weight at first, but gradually a more normal rate of weight gain occurs. A continuous rapid increase in weight and the presence of edema suggest overdosage. The regime is continued until clinical withdrawal indicates treatment is no longer necessary. Duration of treatment may vary from a few days to many months.

Adrenal cortical insufficiency may occur in infancy associated with macrogenitosomia. In proven cases have been reported<sup>3</sup>. There is normal genital development, the appearance of a deep voice, pubic hair, and pigmentation of the skin. Gastrointestinal symptoms such as anorexia, vomiting, diarrhea and extreme dehydration may occur as the result of adrenal cortical failure.

Wilkins, Fleischman and Howard<sup>4</sup> described a case of adrenal cortical insufficiency associated with macrogenitosomia in 1940. This was a boy of three and a half years who showed signs of precocious development of the sex organs since the first few months of life. A sibling was a female pseudohermaphrodite. At birth the penis and scrotum were unusually large and his cry was deep and rough. An acneiform eruption appeared on the face at five months. Pubic hair began to grow at fifteen months. He was large for his age. His skin had a brownish hue and there was some increased pigmentation of the gums. The blood sodium was low and the non-protein nitrogen was elevated. The child had manifested a craving for salt from the age of one year. Death occurred suddenly in hospital. At autopsy the adrenal cortex was found to be largely composed of androgenic tissue with marked diminution of normal cortical cells. The testes were enlarged and also composed of androgenic tissue. The mechanism or the production of adrenal cortical insufficiency here was the encroachment of the androgenic one overgrowth on the other elements of the cortex.

In the cases presented by Jaudon with adrenal cortical insufficiency no evidence of macrogenitosomia or virilism occurred.

The following is a case report of an infant who died at the Children's Hospital of Winnipeg in 1943. The cause of death was in all likelihood adrenal cortical insufficiency. I am indebted to Dr. S. L. Markovitz for kindly permitting me to cite this case. The infant was the first child, born at home, Sept. 12, 1943. No doctor was in attendance. The birth weight was not recorded. The baby was never jaundiced, was breastfed for the first three weeks and then was given supplements of whole milk with water and dextri-maltose. The baby appeared to be well until Oct. 9, 1943, when it began to vomit. At first it only vomited occasionally but immediately following the feeding. The vomiting rapidly became worse so that by Oct. 22, 1943, it vomited after every feeding. The vomitus was always white and never bile stained at home. At first it was not forceful but gradually became forceful. Stools had always been normal. On admission to hospital on Oct. 30, 1943, the weight was 6 lbs. 7 ozs., the temperature was 100, the baby was emaciated and the eyes were sunken. The skin was a peculiar tan color. The baby continued to vomit in hospital and went downhill rapidly. On Nov. 3, it was noted that the abdomen was very flat, toneless, with the outlines of the intestines but not of the stomach showing through. No pyloric tumor could be felt. The testes were noted to be small, the penis was normal in size, no signs of virilism were evident. Death occurred on Nov. 3, 1943.

Autopsy was performed by Dr. Bruce Chown. The adrenal glands were found to be enlarged and hard. The cortex was thrown into many small convolutions. Microscopically the adrenal cortex showed hypertrophy and contained the three adult zones. There was not any persistence or increase of the androgenic zone. In the area representing the disappearing androgenic zone there were as usual numerous macrophages containing golden brown pigment. There were the usual traces of the medulla. The prostate gland and seminal vesicles were large and the prostate showed striking enlargement of the glandular elements. The anterior lobe of the pituitary showed many columns of large eosinophile cells which were considered to be abnormal. The testes were small but anatomically normal.

This case is an example of cortical adrenal insufficiency in infancy. No signs of macrogenitosomia or virilism were evident clinically. The adrenals at post-mortem differed quite markedly from the adrenals of Wilkin's case of Macrogenitosomical precoc. The picture of adrenal cortical hypertrophy in Dr. Markovitz' case suggests that the cortex was attempting to make up the lack of some specific factor perhaps desoxy corticosterone. From the history and autopsy findings the case presented here may well fit into the group described by Jaudon i.e. a syndrome beginning in early neonatal life and characterized by "nausea, regurgitation, vomiting, eventual dehydration and collapse accompanied by excessive renal loss of sodium chloride and water . . . thought to be caused by a temporary absence or physiologic low supply of the desoxycorticosterone factor of the adrenal glands".

#### References

1. Venning, E. H.: Evaluation of Adrenal Cortical Function. In *Man: Medical Clinic of North America*, Jan., 1948.
- 2, 3 and 5. Jaudon, J. C.: *Journal of Pediatrics*, 32:641, 1948.
4. Wilkins, L., Fleischman, W., and Howard J. C.: *Endocrinology*, 26:385, 1940.

### Rh Hapten in Erythroblastosis Fetalis

Mrs. B. Carter, of the Western Pennsylvania Hospital, of Pittsburgh, Pa., addressed the clinical luncheon at the Children's Hospital on January 10, 1949. Her subject was "The Rh Hapten in Erythroblastosis Fetalis."

Mrs. Carter prefaced her remarks with a historical review of the concept of a "hapten" as expressed by Dr. E. K. Landsteiner. This concept describes a hapten as a substance which in itself is not antigenic but which, when combined with a protein, stimulates specific antibody production and this hapten can neutralize this specific antibody. Haptens may be of various chemical composition, e.g. the hapten may be a carbohydrate as in the specific soluble substance of pneumococci, hapten may also be lipid in nature.



Mrs. Carter has prepared a substance from Rh positive bloods which she believes to be the Rh hapten. It is an ether soluble substance which Dr. Price, of Notre Dame University, believes to be a steroid. Her proof that this is a hapten is as follows:

(a) It reacts with Rh antibody in the test tube and neutralizes it.

(b) It will fix complement and this method is used to assay the hapten containing material.

(c) It is not antigenic in itself but when coupled with egg albumen will produce an antibody in rabbits which reacts with Rh positive cells.

The material obtained by Mrs. Carter has been used in the prevention and treatment of Ery-

throblastosis Fetalis. The administration of hapten to the sensitized mother results in a drop in titre. For best results it is suggested treatment of the mother be started early in pregnancy. The material is given by intramuscular route. Mrs. Carter showed graphs demonstrating the remarkable drop in antibody titre produced by the administration of hapten. She also demonstrated several successful results in the application of this therapy to the mother and baby.

Rh hapten is not yet commercially available. This address by Mrs. Carter was most interesting and demonstrated as she said, "How easy is, when you know how."

S. Isa

CANCER

Edited by D. W. Penner, M.D.

Carcinoma of the Stomach

In the Province of Manitoba carcinoma of the stomach still leads the cancer deaths. In 1948, of the 988 reported deaths due to cancer, 194 were of stomach origin. The sex incidence is three male to one female. The age incidence varied from 30 to 95 with the greatest incidence in the 65 to 75 age group.

Complete follow-up records, as shown in table one, are available for carcinomas of the stomach seen at the General Hospital since 1942. These furnish a number of interesting facts. In this period 501 cases were seen. One hundred and seventy-seven cases or 31% were considered inoperable. An additional 12 were first diagnosed

at autopsy. Seventy-four more cases were considered inoperable at laparotomy and an additional 11 refused any operative procedure. Therefore the 501 cases seen, 274 or 55% were considered unsuited for any surgical procedure. Of the remaining 227 or 45%, 94 had palliative surgical procedures and 133 or 26% were resected for attempted cure. Of these cases there were five-year survivals. This includes one case who died of his disease in his sixth year. If the years 1942-1944 only are considered, there remains of 206 cases seen 4 cases still surviving five years or more. It is probably of interest to note that there were more and longer survivals in the clinically inoperable group than in those patients receiving some form of palliative surgery.

	Inoperable		Exploratory Laparotomys		Diagnosed At Autopsy		Refused Treatment		Palliative Surgery		Resected
	Living	Dead	Living	Dead	Living	Dead	Living	Dead	Living	Dead	
1948	10	12	9	5	8	8	2	.....	5	6	11+1*
1947	6	21	2	6	3	1	1	.....	1	7	15
1946	1	21	.....	4	.....	.....	1	.....	1	13	13
1945	.....	14	.....	7	.....	.....	.....	.....	2+1*	16	2
1944	.....	32	.....	13	.....	.....	1	.....	.....	16	3
1943	.....	26+1*	.....	10+1*	1	.....	1+1*	.....	.....	11+1*	.....
1942	.....	32+1*	.....	14+3*	.....	.....	4	.....	.....	12+3*	1

\*Untraced.

In 1942 20% of the total cases seen were resected. In 1948 30% of the total cases seen were resected. Intervals are still too short in these later years to pass any comment.

A summary of the analysis of the end result of carcinoma of the stomach in a large surgical centre

in New York follows. The increased survival in the presence of increased resectability rather than very encouraging in this only too gloomy field of cancer surgery.

D. W. Penner, M.D.

## Abstract

Pack George T., McNeer, Gordon: End Results in the Treatment of Cancer of the Stomach (analysis of seven hundred and ninety-five cases). Surgery, 24: 769, November, 1948.

This paper presents material from a large clinic in New York City, over a period of thirty years, showing that the prevalent view on the hopelessness of cancer of the stomach is not justified, and that modern methods can achieve a worthwhile percentage of good results. Cancer of the stomach is the most common and most rapidly fatal of all malignant tumors, and a revision of a common attitude of hopelessness is necessary.

From 1916 to 1946, 1,205 patients with gastric cancer were treated at the Memorial Hospital for Cancer and Allied Diseases. The resectability rate increased as follows: 1916 to 1930, 2.9%; 1931 to 1936, 7.7%; 1937 to 1941, 26.2%; 1942 to 1946, 39.8%.

The operative mortalities during these periods were as follows: 1916 to 1930, 62.5%; 1931 to 1936, 31.6%; 1937 to 1941, 19.2%; 1942 to 1946, 21.7%. The seeming paradox of higher mortality rate in the latest period is due to the fact that surgeons realize more fully that every attempt must be made to remove a cancerous stomach wherever possible, and thus total gastrectomies and trans-thoracic resections of the gastric cardia were done more frequently. These procedures carry a higher mortality rate. During 1942 to 1946, of 92 subtotal gastrectomies for cancer the operative mortality was only 9.8%.

Although this aspect does not pass critical statistical analysis, it was found that the preoperative duration of symptoms was essentially the same in those who survived 5 years or more as in those who did not. The average duration of symptoms was 9.3 months and 9.9 months respectively.

The percentages of 5-year cures in various types of cancer of the stomach were as follows: Polypoid type, 26.3%; ulcerating, 33.9%; annular, 22.7%; infiltrating, 25%; carcinoma in situ—the miniature focal cancer of the stomach, is the least dangerous, and a patient surviving partial gastrectomy for this tumor has a normal life expectancy.

Metastases in the regional lymph nodes do not contra-indicate operation for two reasons: (1) even experts may be mistaken concerning the gross ap-

pearance of cancer in lymph nodes and, (2) such lesions, if widely resected, can be permanently eradicated. Survival rates after gastrectomy in the two groups are as follows: (a) those without metastases to nodes, 42.8 5-year survival; (b) those with proved metastases to nodes, 24.2% 5-year survival.

The prognosis is definitely related to the grade of the tumor, thus: grade 1 (rare), 100.0% 5-year cures; grade 2, 41.7%; grade 3, 30.0%; grade 4, 16.7%. Hence even patients with anaplastic grade 4 tumors are not hopeless.

Gelatinous or mucocarcinoma has a bad prognosis. Of 9 of these patients, only 2 lived without recurrence for 5 years, although 7 of the 9 showed no node involvement.

Serosal penetration by the cancer, with fixation to neighbouring structures such as pancreas, liver, spleen or colon does not make cure impossible. In 16 such cases, with wide excision, 50% were living and well 5 years later. This is presumably because of the wide excision.

The following recommendations are urged:

(1) Early diagnosis—through familiarity with the symptoms, and care in examining these patients. Simple indigestion, though the most common, is also the most dangerous complaint of any person past middle life. Slight fullness after meals, a recent tendency to constipation, a few pounds loss of weight, ulcer syndrome appearing for the first time in a person over 40, a secondary anemia, should all mean gastric cancer until proved otherwise. Often the first symptom is not definite, merely an awareness of the stomach, or a change in the sense of well-being.

(2) Increase the resectability rate by more radical surgery.

(3) Resect all gastric cancers technically removable even if

(a) the tumor is attached to an adjacent organ (spleen, liver, colon, pancreas) or

(b) apparent metastatic cancer is seen and felt in perigastric nodes, or

(c) the cancer involves the abdominal oesophagus.

(4) Decrease the post-operative mortality by improvement in operative technique, and pre and post-operative supervision.

L. C. Bartlett, M.D.



# ANAESTHESIOLOGY

Edited by R. G. Whitehead, M.D.

## Next Meeting

The Regular Meeting of the Winnipeg Anaesthetists' Society is held on the first Tuesday of every month in the Medical Arts Club Rooms.

## Notes of Two Conventions of Anaesthesiologists

D. M. H. Huggins, M.D.

I had the pleasure of attending the Third Post-graduate Assembly of the New York Society of Anaesthesiologists in New York on December 9-11, 1948, and also the First Postgraduate Reunion of the Department of Anaesthesiology of the Hartford Hospital, on the three preceding days.

The department of Anaesthesiology of the Hartford Hospital, Hartford, Connecticut, now one of the largest training centres in Anaesthesiology on the continent, has been built up by the efforts of Dr. Ralph Tovell, Canadian born, graduate of Queen's, who obtained his M.Sc. in Anaesthesiology from the University of Minnesota, through the Mayo Clinic. In ten years seventy-one residents have received diplomas following a period of satisfactorily completed training under his direction. This well informed group are practising in twenty-six states of the U.S.A., four provinces in Canada, and in four foreign countries. On December 6, 7, 8, of last year, thirty-one of these previous residents gathered at their former training centre for a reunion.

The old building has been replaced by a magnificent hospital, which was opened in April of last year. It has been constructed to the most modern hospital plans, at a cost of ten and a half million dollars. There is a campaign on at present to obtain another million dollars to complete it. Spacious lobby and corridors, ample elevator service, well equipped comfortable wards, round-the-hospital conveyor system were among the many modern things that caught my eye in a general way. I am sure the operating room floor would be a pleasurable place to spend one's time as it is completely air-conditioned. A recovery room where all unconscious post-operative patients are cared for, is a popular addition to this new hospital.

Clinical demonstrations were held in the mornings, and a scientific programme was arranged for the afternoons.

The first afternoon session was given by members of the departments of Pharmacology and

Surgery of Yale University. The value of bronchospirometer tests before lung surgery and anaesthesia was shown by Dr. A. Reil. He described in detail how they can pick their patients for thoroplasties or lobectomy in face of bi-lateral disease by determining the amount of functioning lung a patient has on one side or the other. The amount of lung tissue that a patient has for gaseous exchange is of extreme interest to the anaesthetist and he made a plea for more widespread bronchospirometer tests before anaesthesia and operation.

The role of Analgesics and Anaesthetics in the production of asphyxia neonatorum was thoroughly discussed. Routine orders of pre-medication by a doctor and carried out by a nurse is often the starting point of a difficult resuscitation in the new born. The fact that we are dealing with patients, the mother and her unborn child, must be constantly kept in mind.

Much is being written about the Antihistamines these days, so it behooves the anaesthetist to have a knowledge of their reactions with anaesthetic agents. In the opinion of Dr. Joseph White of Yale University, Benadryl is the drug of choice to use in spasm of the bronchus, blood reactions, and also in overdoses of curare. In addition to its anti-spasmodic effect, it also has a local anaesthetic reaction, two and a half to six times more potent than procaine. It will also augment and maintain a blood pressure elevation which has been produced with epinephrine or ephedrine. He stressed two precautions for the anaesthetist, first, it has an atropine-like reaction in the body, if given with atropine, toxic reactions may occur. Secondly, its use with cyclopropane produces cardiac irregularities. Here pyrabenzamine may be safely used.

Dr. Ralph D. Alley of the surgical department of Yale School of Medicine demonstrated Collateral Respiration by showing the presence of the presence of Cohn in a dog's lung. It is his contention that an obstructed segment of the lung may breathe as much as 10% by this collateral respiration. In the presence of tight binders, wound pain, splinted abdomens, histamine, reduce collateral respiration. Benadryl and pyrabenzamine prevent this drop in respiration, so he suggests these drugs be used clinically to help reduce pulmonary post-operative complications.

The two following afternoon programmes were given by the ex-residents, and each paper was frankly and openly discussed.

Spinal Anaesthesia for vaginal delivery is almost routine in many of the centres. Various drugs are used, but the techniques all produced



anaesthesia in the lower body segments, aiming not to get above DIO level. They have used it in large series of cases, in both multipara and primipara, giving it in various stages of labor. But if the obstetrician anticipates intra-uterine manipulations, some other method of pain relief should be chosen, as this class of patient does not do well with intra-theal anaesthesia. Headache is the prime complication. In one series of 1,000 cases, it occurred in just under 6% of all patients. Tight post-partum binders seem to help to prevent this headache. The pulse rate is usually slow, but increases 20 to 30 beats per minute when the placenta separates, quickly settling down again. The general consensus of opinion was that spinal anaesthesia for the parturient woman is a popular and wise choice, safe and free from serious complications, in the hands of the experienced anaesthetist.

Anaesthesia for Cardiac Surgery was discussed. Men from various centres told of their own techniques and agents, some used cyclopropane, even with the young children, others felt this is too likely to produce arrhythmias which may be fatal, ether and oxygen with pentothal being their choice.

Anaesthesia for repair of tracheo-oesophageal fistulae is always difficult. Kurtz of Detroit, reported on 16 cases, 3 of which were successful and lived. He advised intubating the infant under a topical anaesthesia. Then continuing with ether and oxygen, using an Ayre's tube. The grasp reflex is never obtunded. Repeated suctioning of the endo-tracheal tube is necessary, and advises the use of polyethylene tubing because of its small diameter and ease of passage through the Endo-Tracheal catheter.

In Minneapolis they have anaesthetised over 5,000 people in 2 years with Baird's Solution, a mixture of pentothal and curare. Patient's age varied between four months and ninety-two years. The greatest length of anaesthetic time was fourteen and one-half hours. Baird gives Nitrous Oxide and Oxygen through an Anaesthetic machine after induction has been completed. His only contra-indications are: (1) Asthma, at present he is trying giving 1 to 3 cc. 1/50,000 Isopryl to break any spasm when it occurs, so it is hopeful that asthmatics may receive the benefits of Baird's Solution. (2) Myasthenia Gravis, and (3) an incompetent anaesthetist.

Cocktail parties and dinners rounded out the social aspect of the Reunion. The success of the meeting was proved when plans were made to have a second reunion in five years time. I enjoyed meeting again those who were residents at the same time as I was, and hearing about their practices. It was with reluctance that we broke the charm of the three days and travelled to New York.

The 950 registration at the Post-Graduate Assembly broke all previous records of attendance at Anaesthesiologist meetings.

Acute Cardiac Death during Anaesthesia was the subject for the opening discussion. Five clinical Anaesthetists and laboratory investigators took part. The various causes of acute cardiac death were considered to be one or more of the following:

- (1) Overdose of the drug. (2) Extrinsic influences on the heart, e.g. Vagus stimulation. (3) Drugs affecting the heart. (4) Sensitization of the heart. The latter two causes were particularly discussed.

There are two minimum requirements to produce ventricular fibrillation:

- (1) Presence of a hydrocarbon, such as Cyclopropane, chloroform or ethyl chloride, ethylene being the only exception.

- (2) Some sympathomimetic drugs, eg. epinephrine of exogenous or endogenous origin.

Why epinephrine produces fibrillation is not known. Is considered to be a cellular phenomenon, beyond which no answer is possible at the present.

Remedial measures must be undertaken immediately if there is to be any chance of a successful outcome after the heart has stopped. Four minutes of anoxia will render the heart incapable of beating. Instant diagnosis of the condition is not always easy. Various methods have been attempted, such as observation of the stoppage of flow in the retinal vessels, or E.K.G. continuous set-up. Unless a major artery near the heart, or the heart itself can be seen or felt, we might as well face facts that there is no immediate method of detecting heart stoppage.

At the University of Pennsylvania, when fibrillation occurs, they try first to de-fibrillate the heart muscle by electric stimulation. A series of shocks, 1-2 amp. strength are sent in by a hand switch with the electrode on the myocardium. Often a reversal to normal rhythm will occur. They also give 1-2 litres of any solution intravenously as quickly as possible.

Cardiac massage must be done early if it is going to be of any benefit. Dripps waits no longer than 90 seconds before opening the chest after the catastrophe has happened. If the abdomen is not open, it must be done. One can only bump the heart unless the diaphragm is incised. Actual massage is much better. The rate of compression should be 80-90 times a minute. This moves more blood than if done slowly. Oxygen under pressure and artificial respiration are continuous. Oxygenation to the vital centres can be improved according to Dr. Dripps, by clamping the aorta at the arch, if the chest is open.

The status of cardiac puncture is not unanimous. Various opinions were stated, Epinephrine into a

stopped heart has no value, will only set-up fibrillation if not already present, and can only be condemned. On the other side, two well known anaesthesiologists each stated their experiences, citing cases where it was used and recovery took place. One heart was being massaged with no apparent result until epinephrine was added, when it suddenly started to beat.

Some suggestions in prevention of Cardiac Irregularities:

(1) Blitz inductions with cyclopropane are unwise. Recognize its potentialities, and use prophylaxis, avoiding high concentrations.

(2) Avoid any substance which may further sensitize the heart. Neosynephrine is the only sympathomimetic drug with cyclopropane.

(3) Keep away from excess rises in blood pressure. Use nitrites if necessary.

(4) Blocking of afferent stimuli. Crile's theory may have something. Mesenteric reflexes are not as dangerous as those from around the hilum of the lung.

(5) Ether vapor  $4\frac{1}{2}\%$ , in the inspired mixture of gases has been found valuable.

(6) Intravenous procaine has been used with some satisfactory results.

## OBITUARY

### Dr. S. Gordon Chown

Dr. S. Gordon Chown died suddenly on February 9 from a heart attack. Born in Kingston, Ont., May 29, 1888, he was educated in the public schools there and in Queen's University from which he graduated in Arts and Medicine (1911). Coming to Winnipeg he was attached to the Children's Hospital staff. In 1914 he went overseas as M.O. of the 4th Battalion. He served in France and Belgium with No. 2 Canadian General Hospital and Casualty Clearing Station from 1915 to 1917. Returning to England he was appointed to D.A.D.M.S. with headquarters at Bramshott and in 1918 he was awarded the O.B.E.

Returning to Canada in 1919 he took post-graduate work under Dr. Emmet Holt at the New York Babies Hospital and in the next year he resumed practice at Winnipeg, holding positions on the staff of the Children's Hospital and the Winnipeg General Hospital. In the former he rose to be chief of medicine in 1931, a position which

he held for six years when he retired and was appointed honorary consultant. From 1920 to 1921 he was on the staff of the General Hospital, resigning as honorary consultant.

As a teacher of pediatrics he was a member of the Faculty of Medicine, University of Manitoba from 1922 to 1946, rising from assistant professor of medicine to be professor of pediatrics for five years. He was a past-president of the Winnipeg Medical Society, a member of the Manitoba Canadian Medical Associations and of the Canadian Society for Diseases of Children, and a Fellow of the Royal Canadian College of Physicians.

He is survived by his widow who also served in the First World War, a son and two daughters and a grandchild. One son was killed in the Second World War.

Dr. Gordon Chown did much to establish pediatrics as a distinct specialty and enjoyed confidence and respect of a very wide circle in Winnipeg.

## The Royal College of Physicians and Surgeons of Canada Announcement of Annual Awards

The Royal College of Physicians and Surgeons of Canada offers two annual awards to Canadians for the best original works in the basic sciences, or in clinical research, in Medicine or in Surgery.

The purpose of the awards is to stimulate investigative work by young men below the age of 40 years. No award shall be made if in the opinion of the College the work is not of sufficient merit.

These awards shall be known as "The Royal College of Physicians of Canada Medal" and "The Royal College of Surgeons of Canada Medal,"

respectively.

Candidates may submit their applications, accompanied by their manuscripts, to any Fellow of the College who will forward them to the College, not later than April 1st.

The recipients of these awards shall be invited to present their works at the Annual Meeting of the College, their expenses being paid by the College.

Full particulars regarding the requirements may be obtained from any Fellow of the College.

## Winnipeg Medical Society—Notice Board

Reported by L. R. Coke, M.D.

R. A. Macpherson, *President*

T. E. Holland, *Vice-President*

**Next Meeting**

**Friday, March 18th**

S. A. Boyd, *Treasurer*

K. R. Trueman, *Secretary*

### Winnipeg Medical Society

The Winnipeg Medical Society is able to report another increase in its membership and continued activity in all its departments. At the request of the Society the Library at the Medical College is now open five evenings each week so that greater use of its facilities can be made by the profession.

The meeting at the Winnipeg General Hospital on the twenty-first of January brought a record attendance. It was impossible for anyone to see all the exhibits in one evening, but this only means that other meetings (of a similar nature) will be required in the future. A very wide variety of subjects were treated. The films directed and displayed by Dr. Cherniak and Dr. L. G. Bell were both excellent. The demonstration of gaits is an achievement in accuracy and a relief to those that have in the past suffered under the necessity of personally portraying the diplegic idiot, tongue rolling, head nodding, limbs and trunk almost convulsed in spastic antagonism. Dr. John McEachern had a demonstration of electrocardiographs and Dr. Mathewson showed a cathode-ray machine in operation. Dr. Gerard Allison displayed complete records and serial radiographs of a treated case of myxoedema and congenital heart disease. The dramatic reduction in the heart shadow was well seen. Dr. A. B. Houston exhibited a number of charts on the treatment of the complications of diabetes. One of his younger patients with retinitis and glomerulosclerosis was in attendance. Dr. C. B. Schoemperlem showed bronchoscopic and oesophagoscopy equipment, together with some of the foreign bodies that have been removed with both types of instruments. He had the case record and radiographs of a patient on whom the diagnosis of a benign bronchial tumor had been made by bronchoscopy. Dr. Wendell McLeod had an exhibit

of prepared diets which the members could either look at or eat. Dr. John Kilgour showed a number of graphs which summarized the original work that he has been doing on the blood concentration and its duration with administration of different types of penicillin.

The surgical exhibits were equally impressive. Dr. Charles Burns showed a patient with an arterial embolus and one with a diaphragmatic hernia. Dr. P. H. T. Thorlakson gave a demonstration of the use of the sigmoidoscope in diagnosis of diseases of the colon. Dr. Merkeley had a series of colored photographs illustrating the approved management of severe burns. Dr. Cecil Clarke had a patient in attendance who had made a good recovery following a Whipple operation. Dr. Perrin had a very fine exhibit of benign adenomas of the lungs.

The exhibits of the Eye Department, the X-ray Department and the Skin Department were of special interest to the specialists in these branches.

Dr. Frank White had a demonstration on the use of the colorimeter in biochemistry.

The Electroencephalogram and the Geiger Counter were displayed. Even the Papanicolaou method in pathology could be studied by members interested in this development.

A meeting of the society was held in Theatre A at the Medical College at eight-fifteen on the eighteenth of February. Dr. M. R. MacCharles gave a series of reports of cases with Lesions in the Colon. Professor D. C. L. Bingham of Queen's University, gave a paper on Carcinoma of the Colon.

A meeting will also be held on the seventh of March when Dr. A. J. Cipriani of Chalk River, will give a paper on the Medical Application of Radio-Active Substances.

### Clinical Luncheons

Clinical Luncheons during the month of March will be held as follows:

Tuesday, March 1st—King Edward Hospital.  
Thursday, March 3rd—Winnipeg General Hospital.  
Friday, March 4th—Children's Hospital.  
Tuesday, March 8th—Misericordia Hospital.  
Thursday, March 10th—St. Boniface Hospital.  
Friday, March 11th—Victoria Hospital.  
Tuesday, March 15th—Grace Hospital.  
Thursday, March 17th—Winnipeg General Hospital.  
Tuesday, March 22nd—St. Joseph's Hospital.

Wednesday, March 23rd—Deer Lodge Hospital.  
D.V.A., Evening.

Thursday, March 24th—St. Boniface Hospital.

General Ward Rounds are held at the Municipal Hospital at 8.30 a.m. each Friday, and at the Children's Hospital at 11.00 a.m. each Thursday.

Tumor Clinics are held at 9.00 o'clock each Wednesday morning at Winnipeg General Hospital, and at 10.00 o'clock each Friday morning at St. Boniface Hospital.

The regular meeting time of the Winnipeg Medical Society is the third Friday, March 18th.



## Medico-Historical

J. C. Hossack, M.D.

### Curare Means "To Cook"

#### Two Famous Physician-Cooks

Among the Romans the word "curare" signified not only to cure a disease but also to dress a dinner, for, in ancient times cookery was specifically considered as an important branch of the healing art. It is not surprising, therefore, to learn that cookery is much indebted to medicine or that the best cookery books of the seventeenth, eighteenth and nineteenth centuries were written by physicians. Of these physician-cooks the best known is Sir Theodore Turquet de Mayerne, "by birth a Frenchman, by religion a Protestant; in his profession a second Hippocrates; and what has seldom happened to any but himself, first physician to three kings; in erudition unequalled, in experience second to none, and as a result of all these advantages, celebrated far and near." Such is the inscription on an engraving which shows a jolly-looking, well-kept individual, holding a skull in his left hand and looking as if he had seen but sixty summers instead of eighty-two, which was his age when he died March 15, 1655.

The inscription would have been more accurate if it had stated that Mayerne had been physician to four kings, for he served in that capacity. Henry IV of France, James I, Charles I, and Charles II of England. He was born in 1573 in Geneva; studied at Montpellier and shortly after graduation was appointed to attend Henry IV. His profession of Protestant principles being a bar to his advancement in France he migrated to England and was warmly received by James I. He was skilled and popular so became rich but he was not merely a court physician. He was a "leading exponent of the bedside study of disease" and moreover was an learned chemist. His prescriptions were therefore more scientific than the spagyric, hermetic, semimagical formulae of most of his contemporaries.

The salary of physician-in-ordinary to the king was usually £100. As ten shillings then had the purchasing power of \$40.00 today, this would be equivalent to \$8,000. But Mayerne received £400 or \$32,000 for attending upon James. During the troubled reign of Charles I and throughout the Civil War he lived safe and respected. After the Restoration he was appointed physician to Charles II during whose reign he died at the age of eighty-two.

Today, when the question of fees is a lively one, it is interesting to note the rewards our professional fore-fathers received. According to Garri-son the average fee of the English physician was

about ten shillings or, in our money, \$40.00. Richard Meade charged a guinea, and Harlow who was not a successful practitioner, left an estate of £20,000. Those were the golden days of medicine when the surgeon stood by awaiting the physician's bidding. There is, so far as I am aware, no statement as to the income or estate of Mayerne but as he was very popular and was physician to the king it follows that he was very wealthy. It is no wonder, then, that he could indulge in the richest and rarest viands. He himself attributed his death to drinking bad wine at a tavern in the Strand. "Good wine" he used to say "is slow poison; I have drunk it all my life and it has not killed me but bad wine is sudden death."

Mayerne, in his hours of relaxation, amused himself by applying his chemical knowledge to the improvement of the arts of painting and cooking, in both of which he was proficient. His jokes made him a welcome guest of, among others, Lord Mayor and the great commercial guilds; as a token of his gratitude he named his collection of d'oeuvre, the first and principle recipe in his cookery book, "A City of London Pie." Here is the recipe: Take 8 marrow bones, 18 sparrows, a pound of potatoes, a quarter of a pound of ering, two ounces of lettuce stalks, forty chestnuts, a pound of dates, a peck of oysters, a quarter pound of preserved citron, three artichokes, two eggs, two sliced lemons, a handful of pickled berries, a quarter of an ounce of whole cinnamon, a quarter of an ounce of whole cloves, half an ounce of mace, and a quarter of a pound of raisins. Liquor, when it is baked, with white butter and sugar."

Torquet de Mayerne ate heartily of his own and other's dishes for eighty-two years, and his health lived after him. The principal physician-cook of the nineteenth century was Dr. William Kitchen. He was a very different sort of person. Kitchen played a role of little prominence upon the medical stage. His wealth (which was very great) came from his father. But like Mayerne, his heart overflowed with benevolence and good humour, and few men better understood the art of making his friends happy. His "Cook's Oracle" was filled not only with recipes but with much very readable common sense. He also wrote "The Art of Invigorating and Prolonging Life," a "House Keeper's Ledger," "The Pleasures of making a Will." In addition he wrote upon astronomy and telescopes, published collections of songs and was a proficient musician.

He was an epicure, exceedingly particular in the choice of his viands but abstemious in his habits. His dinners were cooked according to

own method; he dined at five; supper was served at half-past nine; and at eleven he retired. Every Tuesday evening he gave a conversazione at which he brought together the literati and scholars of his wide acquaintance. For the regulation of the party he had placed over the chimney piece in his drawing-room a placard inscribed "Come at seven, go at eleven." (I do not believe that he made any other use of these numbers so commonly mentioned at present-day parties). It is said that one of his witty guests found occasion to insert "it" after "go" which materially changed the reading.

At such parties the menu was simple but only in a comparative sense. It would seem that these dinners were planned to stimulate conviviality and sparkling thoughts rather than to sate an artificially coaxed appetite. Moreover there was about them much pomp and ceremony. They were announced by notes of invitation such as the one that follows:

"Dear Sir, The honour of your company is requested to dine with the Committee of Taste on Wednesday next, the 10th instant.

"The specimens will be placed upon the table at five o'clock precisely, when the business of the day will immediately commence.

"I have the honour to be

"Your most obedient servant,

W. Kitchiner, Sec.

"At the last general meeting it was unanimously resolved—that

1st. An invitation to ETA BETA PI must be answered in writing as soon as possible after it is received—within twenty-four hours at latest—reckoning from that at which it was dated; otherwise the Secretary will have the profound regret to feel that the invitation has been definitely declined.

"2nd. The Secretary having represented that the perfection of the several preparations is so exquisitely evanescent that the delay of one minute after the arrival at the meridian of concoction will render them no longer worthy of men of taste:

"Therefore to ensure the punctual attendance of those illustrious gastrophilists who, on this occasion are invited to join this high tribunal of taste—for their own pleasure and the benefit of their country—it is irrevocably resolved—That the janitor be ordered not to admit any visitor, of whatever eminence of appetite, after the hour at which the Secretary shall have announced that the specimens are ready.

"By Order of the Committee,

"W. Kitchiner, Sec."

At the last party given by Kitchiner he welcomed his earliest guest seated at his piano and playing "See the Conquering Hero Comes." A few days later he was himself a guest at another party and on returning home complained of feeling ill. The conqueror had indeed arrived for in an hour he was dead.

## BOOK REVIEWS

### The Technic of Medication

**The Technic of Medication** is the successor to Bernard Fantus' well known "General Technic of Medication" which was written "for those who wish to improve their own methods and to advance the technic of medication in general." This is a completely rewritten work, and an idea of its purpose can best be given in the words of the author's introduction. "No drug should be administered unless it is indicated. In fact, no medical treatment should be undertaken unless the need for it has been demonstrated in the patient.

"It should not seem necessary to repeat such well known admonitions, but in spite of the frequency with which they are heard, ineffectual and unnecessary medication is common. Undoubtedly there are occasions when treatment is instituted only after careful and sound deliberation, but without satisfactory response; in such instances, which, unfortunately, are not unusual, the failure must be due to the body response or to the organism under attack. No one can be

"blamed for this outcome. On the other hand, when drugs or other medical aids are applied indifferently to the patient without previous determination of need, choice of route of administration, possible effect, or desirable supporting measures, the administrator cannot be proud of himself if the patient recovers almost, it might seem, in spite of the treatment; he is fortunate if there are no serious consequences. And if the patient suffers because of such hazards and inadequate treatment, someone has failed to meet his or her responsibilities."

The volume is divided into eight chapters which are sub-divided as follows:

#### 1. General Considerations in Medication:

Trends in Therapeutics, Other Treatment Measures, Choice of Treatment, Untoward Effects, Laboratory Aids.

#### 2. The Prescription:

Purpose and Form, Narcotics, Latin vs. English, Weights, Choice of Drugs, The Hospital Pharmacy, Directions to the Patient, Ownership of a Prescrip-

tion, Use of the Mails, Out-of-State Patients, Telephone Prescriptions, Professional Relations.

### 3. Oral Administration:

The Drug Dose, Factors in Oral Administration, Capsules, Tablets and Pills, Powders, Liquid Dosage Forms, Gavage.

### 4. Parenteral Administration:

The Injection, Care of Needles and Syringes, Hypodermic Preparation, Intracutaneous Injection, Subcutaneous Injection, Intramuscular Injection, Intravenous Injection, Intraperitoneal Injection, Subarachnoid Injection.

### 5. Rectal and Genito-Urinary Administration:

Rectal Administration, Genito-Urinary Applications.

### 6. Applications to the Skin:

General Principles, Classification of Applications, Lotions, Endermic Applications, Diadermic Medication, Medication of the Ear.

### 7. Mucous Membrane Applications:

The Eye, Inhalation Therapy, Sprays, Medication of the Nose, the Mouth, the Throat.

### 8. Some Practical Aids:

Physical Aids, Storage of Medicinals. Care of Equipment, Removal of Stains, Poisons.

In this small book of 255 pages there is a great deal of useful information concerning the application of remedies, and users of it will find it valuable as a guide to the more intelligent prescription of medicine agents.

**Technic of Medication**, by Austin Smith, M.D., C.M., M.Sc. Director of the Therapy and Research; Secretary, the Council on Pharmacy and Chemistry, The American Medical Association. J. B. Lippincott Company, Publishers, Montreal. Price \$6.75.

## New and Non-official Remedies

**New and Non-official Remedies** is an official publication of the A.M.A. It is an exceedingly comprehensive and useful book of reference, for it lists all the preparations acceptable to the Committee of Pharmacy and Chemistry of the A.M.A. These are arranged in such a way as to make easy the comparison of preparations whose similar names might confuse the prescriber. For example we find together digilanid, digitoxin, digitalein, puredigin, digitan, digitol, digoxin, etc. Each is discussed with sufficient fullness, and acceptable brands and their manufacturers are designated. Similarly the uncertainty and confusion which surrounds the multi-named oestrogens is clarified by considering them together. The same is the case with the barbiturates, xamthine derivatives, etc. Moreover the book is a guide to the what not to prescribe for it includes a large number of preparations which have not been accepted.

All pharmacological groups are included and a great deal of authentic information is supplied so

that the prescriber may learn exactly the advantages and disadvantages of any preparations may wish to prescribe. Following is a list of chapters:

Agents Used in Allergy, Analgesics, Anesthetics, Local Anti-Infectives, Systemic Anti-Infectives, Antispasmodic Preparations, Astringents, Caustics and Sclerosing Agents, Autonomic Drugs, Cardiovascular Agents, Central Nervous System Stimulants, Contraceptives, Diagnostic Aids, Diuretics, Oxytocics; Gastrointestinal Drugs, Hematics, Hormones and Synthetic Substitutes, Agents Used in Metabolic Disorders, Parenteral Solutions, Pharmaceutic and Therapeutic Aids, Sedatives and Hypnotics, Serums and Vaccines, Unclassified Therapeutic Agents, Vitamins and Vitamin Preparations.

**New and Non-official Remedies.** Contains Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on June 15, 1949. Issued under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. 800 pages. J. B. Lippincott Company, Montreal. Price \$3.75.

## Books and Journals Wanted

### "March of Books" Campaign

(Sponsored by the Canadian Council for Reconstruction through UNESCO and Canadian Library Association).

Books and journals are wanted to replenish the shelves of libraries in war-devastated countries.

Standard works and classics in all subjects especially books and journals published since 1918 to fill the gap in knowledge caused by the war. Books of permanent value in original language or translations—recent medical books on Diagnosis and Treatment of Disease, Health, Diet, Nursing, First Aid, Child Care, and Association Journals.

If your library were bombed out, what would you want to replace it? The books you need, the need.

"Give a book to feed a Hungry Mind."

Collection centres have been notified through the press and radio.

## Refresher Course

The Faculty of Medicine of the University of Manitoba will offer a four-day Refresher Course beginning April 19th to 22nd. A detailed programme will be published in the April issue of the Review.



## LABORATORY NOTES

Reported by Miriam Wiseman, B.Sc., M.T. (A.S.C.P.), R.T. (Can.)

### Toxic Reaction of Sulfonamides and Laboratory Methods of Detection

Miss A. M. Costella, R.T. (Can.)

Available evidence to date has proved that all drugs of the Sulfonamide derivation have a certain toxic effect on the blood formation. These drugs are organic chemicals and as such contain a benzene ring as a central basic structure with an attached amide grouping ( $\text{NH}_2$ ). The various derivatives of the parent compound have always retained this central basic structure. This is an important point with particular respect to Leucopenia, as all drugs known to produce granulocytopenia have this central basic structure.

In general, the blood concentrations of Sulfanilamide is maintained between 10-15 mgms. per 100 cc of blood. Other Sulfa drugs are usually maintained at lower levels. Local use of the drugs as ointments and sprays provide blood concentrations as high as 4 mgms. per cent. Ambrose and his associates have shown that absorption is rapid and that the blood levels can be as high as after cutaneous application on burns, etc. This would indicate that, whether Sulfa is administered orally, by vein, or locally there is always danger of blood complications.

Harvey and Janeway reported, in 1937, Sulfanilamide and Sulfapyradine were capable of producing a decrease in erythrocytes and hemoglobin, and in some cases produced an acute hemolytic anemia.

The disorder is characterized by fever, pallor, and a rapid decrease in erythrocytes and hemoglobin. There is also evidence of increased red blood cell destruction with reticulocytosis, increased icteric index, urobilinogen, and occasionally clinical jaundice. Usually anemia develops early in the course of therapy. There is no evidence of bone marrow depression, rather a stimulation in response to increased cellular destruction. The morphological studies are normal, and after therapy is discontinued, there is no further hemolysis.

Kidney function is impaired, it is thought, by excessive amounts of hemoglobin blocking the renal tubules, causing uremia. In the majority of cases with renal impairment, the urine is highly acid.

In regards to leucopenia, as before mentioned, drugs with a central benzene ring and  $\text{NH}_2$  in their basic construction are capable of producing a bone marrow depression of the leucocytic production and complete agranulocytosis.

Bone marrow smears show an arrest of the cellular maturation of the leucocytes at the myeloblastic stage. Myeloblasts are plentiful in the marrow with the resultant granulocytopenia in the blood stream. Leucocyte counts may fall extremely low with a complete disappearance of the granulocytes.

In the same manner, these drugs effect the platelets, causing a serious thrombocytopenia and severe hemorrhages.

Kracke reports Leukemoid reactions in occasional patients, total leucocyte counts of 50-60, or even 100 thousand cells per cu. mm. with a marked increase in immature forms. One case reported, after extensive Sulfathiazole therapy, developed an acute Myeloblastic Leukemia, though the blood counts were normal at the time of injury. He states that a casual relationship between Sulfa drugs and leukemia may exist, as a great number of leukemic patients have histories of previous Sulfa therapy, or the process may be a reversible one.

Laboratory tests, based on the above formation would indicate repeated blood checks in regards to hemoglobin and erythrocyte counts, as well as leucocyte counts, smears and platelet counts, with careful studies of bone marrow in cases of abnormal increases in the leucocytic series.

Blood Sulfa levels for routine checks on Sulfa concentrations of the blood are usually carried out by the Bratton and Marshall method for the determination of Sulfonamide compounds in blood and urine. Small kits for the determination of Sulfa levels of the blood are prepared by some companies. These are based on the same principle as the Bratton and Marshall method, and though not as accurate, are helpful in small laboratories and doctors offices.

#### Bratton and Marshall Method of Determination of Sulfonamide Compounds in Blood and Urine

Principle: This method is based on the colorimetric estimation of the amount of purplish-red azo dye formed by the coupling of diazotized sulfanilamide with N—(1 naphthyl) ethylene diamine dihydrochloride. Since the diazotization depends on the presence of a free amino group, the method may be applied to any sulfonamide derivative in which the amino group is free, or can be made free by a form of hydrolysis which does not otherwise change the compound.

#### Reagents:

1. Trichloroacetic Acid Solution, 15%.
2. Sodium Nitrate Solution, 0.1% (keeps in the refrigerator, 1 week).

3. Saponin, 0.5 gms. per liter of water.
4. Ammonium Sulfamate Solution, 0.5%.
5. Hydrochloric Acid (approximately 4N); dilute 340 cc of concentrated HCl (sp. gr. 1.19) to 1 liter of water.

6. Color reagent, 0.1%: Dissolve 0.1 gm. of N(1 naphthyl) ethylene diamine dihydrochloride (Eastman or LaMotte) in 100 cc water.

7. Stock Standard Sulfanilamide Solution: Transfer 100 mgms. to a 500 cc volumetric flask. Add about 400 cc of water and heat in a water bath until dissolved. Let cool to room temperature and dilute to the mark. (1 cc equals 0.2 mg). Keep in the refrigerator, it remains unchanged for several months.

8. Working Standard: Into each of three 100 cc volumetric flasks add 18 cc of the Trichloroacetic acid solution. Pipet accurately into one flask, 1.0 cc of the stock standard sulfanilamide solution into the second flask, 2.5 cc, and into the third 5 cc. Add water to the mark in all the flasks and mix. The Sulfanilamide concentrations are, respectively, 0.02, 0.05, and 0.10 mg per 10 cc.

#### Procedure for Free Sulfanilamide:

1. Place 30 cc of the Saponin Solution in an Erlenmeyer flask, add 2 cc of oxalated blood. Stand 1 minute for hemolysis.

2. Add 8 cc of the Trichloroacetic acid solution. Mix and filter.

3. To 10 cc of the filtrate and 10 cc of each of the standards add: (a) 1 cc of the Nitrite solution, mix, stand three minutes. (b) 1 cc of the sulfamate solution, mix and stand 2 minutes. (c) 1 cc of the color reagent, mix and stand 10 minutes.

Compare the unknown in the colorimeter with the standard most closely matching.

Calculations: If the unknown is set at 10, then the Sulfanilamide content in mg per cent is:

0.4 times the reading of the standard, if the 0.02 mg standard was used.

1.0 times the reading of the standard, if the 0.05 mg standard was used.

2.0 times the reading of the standard, if the 0.10 mg standard was used.

#### Procedure for Total Sulfanilamide:

In a test tube graduated at 10 cc, place 10 cc of the Trichloroacetic acid filtrate and 0.5 cc of the 4N Hydrochloric acid. Heat in boiling water for one hour. Cool to room temperature. Adjust the volume to 10 cc and proceed with the determination as for free Sulfanilamide.

The conjugated Sulfanilamide is obtained by subtracting the free from the total.

#### Procedure for Sulfanilamide in Urine:

1. Pipet 1 cc of urine into a 10 cc cylinder, add 1 cc of the 15% Trichloroacetic acid solution, dilute to the 10 cc mark. Filter if necessary.

2. Pipet 2 cc of the filtrate into a 50 cc volumetric flask, add 2.5 cc of the 4N Hydrochloric acid

and dilute to the mark with water.

For Free Sulfanilamide, 10 of the filtrate treated as the 10 cc of blood filtrate was treated as the 10 cc of blood filtrate.

For Total Sulfanilamide: 10 cc of the yellow solution is heated for 1 hour without further addition of acid and treated as the blood filtrate.

Calculations: If the unknown is set at 10, the Sulfanilamide content in mg per cent is:

5.0 times the reading of the standard, if the 0.02 mg standard was used.

12.5 times the reading of the standard, if the 0.05 mg standard was used.

25 times the reading of the standard, if the 0.10 mg standard was used.

#### Notes

1. While it is somewhat more accurate to determine other sulfonamide compounds by colorimetric comparison with the standard prepared from the compound administered, the increase in accuracy probably does not justify the maintenance of a large number of standards that would be involved. Further it may not be possible to obtain various compounds in sufficient purity for the preparation of the standards. For clinical work the conversion factors may be employed if sulfanilamide is used as the standard. Obviously it is essential that the laboratory know which compound has been administered.

For Sulfapyridine: multiply the Sulfanilamide result by 1.45.

For Sulfathiazole: multiply the Sulfanilamide result by 1.48.

For Sulfadiazine: multiply the Sulfanilamide result by 1.47.

For Sulfamethylthiazole: multiply the Sulfanilamide result by 1.54.

For Sulfaguanidine: multiply the Sulfanilamide result by 1.25.

The above factors are based on the anhydrous molecular weights i.e., the molecular weight of Sulfanilamide is 172 and that of Sulfapyridine 249 and the conversion factor is: 249 divided by 172 equals 1.45. This procedure may be employed for such new sulfonamide derivatives as they appear.

2. Colorimetric comparisons may be made with the photoelectric colorimeter using a 1:4 dilution instead of the 1:20 blood dilution. Use a No. 54 filter and a distilled water zero. With the above reagents the blank reading is usually negligible. Use the standard containing 0.02 mg per 10 cc. This will correspond to a concentration of 8 mg per cent, if a 1:40 dilution of the blood is used. The factor is then 8 divided by the reading of the standard. This factor is then multiplied by the reading of the unknown to give the mg per cent of the sulfanilamide in the blood.

3. Color proportionality in the photoelectric colorimeter is good over a wide range and only one standard need be used.

**Qualitative Test for Sulfa Compounds in Urine:**

This test gives positive results in the presence of all types of Sulfa drugs and depends on the yellow color produced a solution (acid) of aromatic ammonia added to Legman.

Legman is a constituent of wood and is present in all mechanical pulped paper, such as newspaper, paper towels, etc., but it is not present in purified papers such as filters, etc.

Place a drop of the sediment of centrifuged urine (urine that has been standing a half hour or longer may be used uncentrifuged) on wood pulp paper, add a couple of drops of 4% Hydrochloric Acid. The resultant color indicates the presence of Sulfa.

**Color:**

Faint Yellow	+	Approximate Sulfa concentration	.01%
Deep Yellow	++	Approximate Sulfa concentration	.05%
Orange	+++	Approximate Sulfa concentration	.10%
Deep Orange	++++	Approximate Sulfa concentration	.5%

This test might prove of value to country practitioners without laboratory facilities to examine urine for crystals.

Mercedes Vincente de Toergrosa, Ph.D., reports, in the American Medical Journal of Clinical Pathologists, July, 1947, Hemophilus influenzae interfere with Blood Sulfa levels.

In a patient receiving Sulfadiazine in the treatment of meningitis due to Hemophilus influenzae organisms, extremely high (86.9 mgm per cent) sulfa determinations. (Bratton and Marshall

method) were obtained and remained high as long as the spinal fluid cultures remained positive, resolving to a 5 mgms per cent after the cultures were reported negative.

Subsequent investigation proved that cultures of Hemophilus influenzae produced a substance that gives a colorimetric reaction with the reagents used in Sulfa determinations. Equivalent colorimetric values ranging from 2.3 mgms to 6.5 mgms sulfadiazine were obtained.

It was believed that these colorimetric reactions were due to the production of indole by the indole positive strains of the organism. To test the validity of this assumption, an aqueous solution containing 1 mgm of indole per 100 cc was treated as the blood in Sulfa determination and gave a colorimetric reading equivalent value of 4.6 mgms sulfadiazine per 100 cc of solution. Therefore extremely high sulfa levels in patients with Meningitis and bacteremia due to Hemophilus influenzae, was found to be caused by the indole formation of the organisms giving a color reaction similar to the reaction obtained by the Sulfa drug.

**References**

1. Roy R. Kracke, M.D., The Effects of Sulfanilamides on the Blood. American Journal of Clinical Pathology, April, 1944.
2. Approved Laboratory Technic, Kolmer and Boerner, page 855.
3. Mercedes Vincente de Torregrosa, Ph.D., Interferences with Sulfa Determination of the Blood by Hemophilus Influenzae, American Journal of Clinical Pathology, July, 1947.

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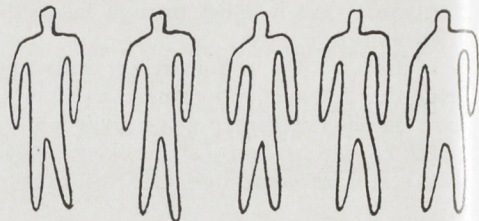
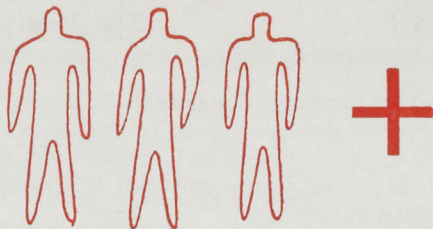
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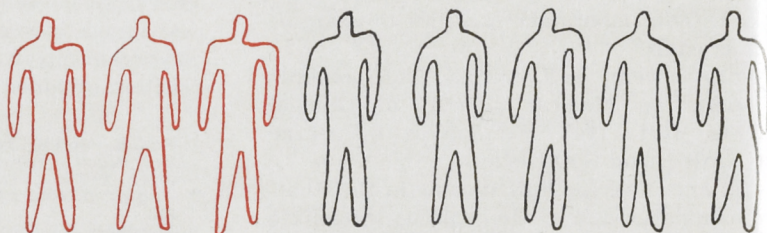
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## EDITORIAL

J. C. Hossack, M.D., C.M. (Man.), Editor

### Safety in Colours

From time to time one hears or reads about the occurrence of accidents and near-accidents when solutions have been confused at times of injection. Most often novocaine has been the solution whose use was intended but some how alcohol or adrenalin has been the substance injected. The operator cannot distinguish one clear preparation from another and error, when it occurs, is revealed only by the behaviour of the patient. Inasmuch as local anaesthetics and alcohol are often present on the same tray at the same time it would be wise

to colour these two in such a way that no mistake could occur. A little dye dissolved in each would distinguish them, while adrenalin or other such poured-out solutions would be indicated by their freedom from colour. The frequency with which the wrong solution is injected or nearly injected is proof that such a step is desirable. The same applies to solutions used for instillation in the eyes. All dangerous preparations should be so clearly distinguishable that nothing but the most gross carelessness would permit of their wrong application.

### Letters to The Editor

January 27, 1949.

The Editor,  
Manitoba Medical Review,  
Winnipeg, Manitoba.

Dear Sir:

I am writing with reference to a circular letter dated January 21, 1949, sent out under the heading of the Manitoba Medical Service and signed by its Medical Director.

I have every sympathy with the Directors of the Manitoba Medical Service and I believe that they are honestly and conscientiously trying to solve vexatious problems to the best of their ability.

However, there is an aspect to the Manitoba Medical Service which I believe it is important for all of us to appreciate and to appreciate fully.

There is no doubt in the minds of many of us, and certainly current world events are tending to prove it, that it is merely a matter of time before some form of state medical service takes place in this country. Undoubtedly, what the form of that control of private practice will be, none can definitely say. There is good reason to believe that we are now, in our own medical service, setting a precedent which governments may fairly follow, on the understanding that if we agreed to set such conditions for ourselves, it would be reasonable to work under similar conditions on any scheme which the government imposes.

With this in mind, I think it would be worthwhile if every member, who subscribes to the Manitoba Medical Service would read the last directive and substitute for the terms Manitoba Medical Service, "National Health Service," and where the terms Medical Director are used, to use the term, "Superintendent of the National Health Service." I think it would be instructive to read this letter in that light, in order that we may ap-

preciate what a far reaching effect such decisions may have on the future of the practice of Medicine.

In effect these last regulations may well mean, that when a national health service is established, the central governmental authority can direct doctors to:

- (1) Send x-ray plates to the central authority.
- (2) Send all laboratory reports to a central authority.
- (3) Force specialists (and presumably any doctor) to submit a report of his findings upon any patient seen in consultation.

Furthermore, the central authority has to grant written permission before a patient can exercise the right to change his doctor.

Even more disturbing is the fact that implicit in the issuance of these far reaching changes (affecting traditional principles in the relationship between doctor and patient) apparently no prior reference or consultation with the doctors providing the service, has been deemed necessary.

While it may be argued that, on the grounds of expediency, and in order that the Manitoba Medical Service may operate efficiently, these regulations are necessary; I think it can be argued equally well that these regulations, since they are setting precedent, may in the long run prove to be a matter of considerable regret to all of us.

Yours truly,

Alan A. Klass, M.D.

The Editor,  
Manitoba Medical Review,  
Winnipeg, Manitoba.

Dear Sir:

Dr. Alan A. Klass has been kind enough to inform us of the contents of a letter which he intends to have published in the next issue of your Review.



While we do not want to enter into a controversy with any medical members of our Service, we feel we should explain that the steps taken are the result of four years' experience and are believed to be essential to the development of a sound prepaid medical care plan that will function with fairness to all medical members and subscribers. It is reasonable to assume that failure to reach this objective may result in the type of control we are most anxious to avoid. Our plan preserves the principle of free enterprise in that the practitioner, if he disagrees with the decision of the majority, may withdraw his membership; whereas, under a State plan it is unlikely he would have the freedom to choose.

It is an obligation of the Trustees of the Manitoba Medical Service to protect the interests of the majority of the medical profession and when accounts are rendered that in the opinion of the Board involve a penalty on the great majority of the medical members of the Service, action must be taken to protect those remaining members and the best interest of the Service. Our experience has shown us that if the interests of Doctors as a whole are to be protected, the Committee taxing Doctors' accounts must be in a position to deal with accounts which do not appear to be in accord with accepted medical practice. The changes criticized by Dr. Klass are believed to be necessary to an intelligent taxing of medical accounts, and if as suggested in the last paragraph of his letter they do "in the long run prove to be a matter of considerable regret to all of us," the responsibility of the minority of doctors who have made them necessary, is a very serious one.

Yours very truly,

Gordon Lawson,  
Chairman of the Executive Committee,  
Manitoba Medical Service.

### Nationalized Medicine in England

"Medicine has now been nationalized and a great muddle they have made of it. The doctors, I think, have behaved very foolishly, as they did not stick together as they should have done. They ought to have stood out for decent pay and terms before agreeing to serve in the new Service. The result is that many people, I hear, are in serious difficulties as their private practices have fallen

off so much, and they do not earn enough to run the Health Service to meet all their expenses.

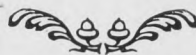
Lord Horder has started a new Society, "Fellowship of Freedom in Medicine" but whether it will be able to do any good I do not know. I course now that people have to pay so much for the Health Service, and can get medical attention for nothing, they go to doctors about things which would either have neglected or treated at home, and as you can get a new pair of spectacles for nothing once in two years, there has been a tremendous rush; people who bought their spectacles at cheap shops or went without, are all going to the doctors, and, as G.P.'s have to sign certificates for spectacles, hearing appliances, corsets, belts and various other things, the unhappy doctors are almost worked to death.

The Harley Street fees have now gone up to five guineas for a first visit to a Specialist, which, I think, is a little rash, as it will drive more people into getting their consultations under the Government scheme. So the specialists' incomes will continue to go down. Rents are also very much higher than they were before the war, and the Health Centres, which are part of the scheme, have not yet materialized. So I think everyone is very much worse off medically than they were before the war. As civil servants there is very little inducement for medical men to keep up to date and to maintain a high standard of treatment. The Health Centres might have been a very great boon, as it is so difficult for a doctor in the country to get X-ray and Laboratory service for his patients. If the Health Centres these conveniences would have been brought to every village.

I am very much interested in a letter to the British Medical Journal from an Oculist, Mr. Spence, who said he had great success by treating his cataract patients with calcium iodide. I believe it is a 1% solution which he drops into the eyes every night. He claims this will arrest further development of the cataract though it does not effect a cure.

With regard to spectacles, owing to the high cost of spectacles, manufacturers have run short of lenses, and it takes three months to get a pair of glasses. I am told that it takes a year to get a set of artificial teeth, but cannot vouch for that.

....., M.D. (Lond.)





## ASSOCIATION PAGE

Reported by M. T. Macfarland, M.D.

### Central District Medical Society

A meeting of the Central District Medical Society was held in the Classroom at the Portage General Hospital, Portage la Prairie, at 7.30 p.m., on Tuesday, January 25th, 1949.

Those present were: Doctors A. A. Alford (Chairman), Oakville; G. P. Armstrong, H. S. Atkinson, G. C. Fairfield, G. H. Hamlin, J. W. Kettlewell, I. Jarema (by invitation), J. C. Rennie, C. M. Thomas, Portage la Prairie; Gilbert L. Adamson, S. S. Peikoff and M. T. Macfarland, Winnipeg.

Dr. Gilbert L. Adamson, Winnipeg, discussed some problem cases in the field of Psychosomatic Diagnosis, and Dr. S. S. Peikoff spoke on the Physiological, Diagnostic, and Surgical aspects of Jaundice.

The Executive Secretary discussed work of the Executive in connection with Group Insurance, Workmen's Compensation Board, Provincial Government Diagnostic Centres, Federal Health Grants, Manitoba Medical Service, and current trends in the provision of medical care.

While others may have been celebrating with Haggis, a delicious turkey luncheon was served.

### North of 53 District Medical Society

Doctors C. E. Corrigan and R. W. Richardson, Winnipeg, represented the Association at a meeting of this most northerly medical group which met at Flin Flon on Wednesday, January 26th. Doctors Harold Morison, Winnipeg, and Adam Little, Dauphin, were also in attendance and all speak appreciatively of the high calibre of entertainment provided.

### Group Insurance

The date on which the special sickness and accident plan went into effect was December 29th, 1948. All members in active practice whose birth anniversary allowed them to be classed under sixty-five years of age in the insurance sense were eligible for enrolment until February 1st, 1949, without evidence of insurability. By special provision with the North American Life and Casualty Company, female members of the Association and some other members whose birth anniversary prevented them from qualifying for maximum benefits were eligible for enrolment for a larger amount of weekly benefit, with a reduction in time of coverage due to illness. Of interest to recent graduates is the fact that they are eligible for enrolment in this special plan, without evidence of insurability if application is made within thirty days after becoming a member of the Association. It is pointed out, however, that any subsequent

increase in weekly reimbursement, accidental death, or optional reimbursement coverage will necessitate medical examination. Also since the wintry weather conditions prevented the agents from making personal contact with all rural physicians, it is understood that any member under the age of fifty-five years will be accepted for enrolment without evidence of insurability until the end of February, 1949. The response to the offer has been most gratifying, and if there are any further queries, the Executive Secretary will endeavour to answer them, or to direct you where the answer may be secured.

### Highlights of the Executive Committee Meeting Held on January 9th, 1949, Are Presented Herewith:

Eighteen members attended. Doctors Alford and Best, representatives of the College of Physicians and Surgeons and Association Joint Committee were welcomed. Dr. A. D. Kelly, Assistant Secretary, Canadian Medical Association, always a welcome guest, assisted in the general discussion concerning the Federal Health Grants.

#### Central (Departmental) Advisory Committee—

Appointment of the Executive Secretary as a member of the committee set up by the Minister of Health in connection with the Federal Health Grants was approved, and outline given of the procedure for submitting projects, and the manner in which applications would be screened.

**Crippled Children**—The active participation of the Association was requested by the Minister of Health in connection with the utilization of funds allotted to the Province of Manitoba in connection with Crippled Children. The Executive referred the matter to the Executive of the Children's Hospital and those whose special interest is Orthopaedics. It is apparent that satisfactory use of the grant will involve definition and extent of the problem, examination of children classified as crippled on the registry maintained by the provincial Department of Health and Public Welfare who might benefit from treatment, and plans for remedial measures. Other members of the profession who are interested in this project may assist the special subcommittee named: Doctors W. Grant, L. D. Croll and G. H. Ryan.

**Venereal Disease Control**—A grant from this fund has already been approved to provide penicillin for treatment of all cases of Venereal Disease outside Greater Winnipeg. An extension of that service for every reported case of Venereal Disease is anticipated, and the matter of payment to the physicians for all cases in which examinations are

requested by order of the Minister or treatment is given by a physician residing outside established Venereal Disease Clinic or Health Unit areas is under consideration.

**Maternal and Child Welfare**—One of the projects submitted by this Department was for the provision of a nurse consultant who would visit the various hospitals in the province to advise in the care of premature and newborn infants, and instruct in the use of portable incubators which have been recommended as a worthwhile purchase.

**Health Survey Committee** — The Minister of Health has invited the Association to submit nine names from which three will be chosen to represent General Practitioner Rural, General Practitioner Urban, and Specialists on the Health Survey Committee. The work of this Committee, which will consist of representatives of professional and lay groups, will be to review the present situation in this Province and advise the Minister.

**Cancer Control**—Attention was drawn to the press announcement on December 20th, 1948, that the sum of \$44,500.00 had been appropriated by the Federal Government for the extension of Cancer Control in this Province.

### Workmen's Compensation Board

At the first meeting of the Taxing Committee, considerable time was spent reviewing the accounts of one association member who was having prolonged correspondence with the Board over assessments. The decision of the Committee was that the member had been fairly treated over the period examined. The question of whether the function of fee assessment previously carried on by the Referee Board, W.C.B., should now be assumed in entirety by the Fee Taxing Committee remains to be finalized.

**Manitoba Medical Service** — One of the chief factors preventing desired expansion of the prepaid medical care scheme is the limitation of income clause which prevents those in the salaried class above a fixed amount (\$3,600.00 for married man with family) from being accepted as a subscriber with his group. The following resolution was passed:

"THAT the Executive, in the meantime, approves in principle withdrawal of any salary limitation under the Manitoba Medical Service, subject to the Manitoba Medical Service submitting to the Association definite proposals for making this work; extra billing might be contemplated for higher income levels and consideration should be given to the limitation liability of the Manitoba Medical Service for certain services."

It has also been proposed that the Manitoba Medical Service might offer interested groups a new service contract similar to that provided by

the diagnostic units set up by the Department of Health and Public Welfare for local health boards.

**Canadian Arthritis and Rheumatism Society**—Dr. F. G. Allison was nominated as Association representative on the organization Committee of provincial division of this Society. Mr. Ed. Dunlop, recently appointed Executive Director, had come to Winnipeg to explore the possibility of organizing this province. Application has been made for organizational funds from each of the provinces, and an outline of proposals will soon be available.

**Fee Revision**—Two committees are now at work in respect of Fee Revision—one is the M.M.S. Fee Revision Committee which is charged with the responsibility of interpreting the Schedule of Minimum Fees, M.M.A., 1946, for the Manitoba Medical Service—the other is the outcome of deliberations between General Practitioner and Specialist Groups which recognize the need of a revamped Schedule. All interested groups are expected to submit for consideration procedures and fees which should be included.

**Financial**—The Treasurer submitted a mimeographed copy of financial statement for 1948 which showed a favourable balance.

**Liaison Committee C.P. & S.-M.M.A.**—A successful meeting of this Committee was held recently to the Executive Committee. Various items of procedure and finance were discussed, and a happy relationship reported.

**Hospital Charges to Medical Staff.** The Executive of one of the better hospitals in the province has received the idea of bolstering income by charging a fee for use of the Operating Room to members of the medical staff. Had the idea been put into operation the good relations which should exist between hospital and staff might have been seriously jeopardized. Fortunately, the matter was amicably settled following discussion by the principals concerned.

**Diagnostic Unit, City of Winnipeg.** In a report to City Council, Dr. M. S. Loughheed suggested that sufficient and satisfactory diagnostic facilities exist in the City of Winnipeg, and fuller use might be made of prepayment services offered by the Manitoba Medical Service and Manitoba Hospital Service Associations.

**C.M.A. Executive.** Dr. Kelly advised that the Executive meeting date had been advanced several weeks to consider matters of importance to the profession in relation to the Department of Veterans' Affairs. Matters of treatment of civil dependents of veterans, and of civilian arthritis in departmental hospitals requires careful attention.

## SOCIAL NEWS

Reported by K. Borthwick-Leslie, M.D.

Gordon suffers from a temporary "Heckling hypertension" waiting for me this month again at I knew I was waiting for somebody!—of course was Anna—I've always maintained the column wouldn't be complete without her so behold last night there she is smiling at me from the Tribune, all fresh and perky after her holiday in Guatemala and of course Scholastic Tour of Minneapolis. Obviously, welcome home Dr. Anna Wilson.

Welcome too, is that announcement of "Dramamine" cure all for sea sickness, reported from Baltimore. Come I get that furnace, etc., paid for hope to have a supply of it for that long looked for crossing of the pond.

Dr. and Mrs. Archie Portigal and family have deserted Winnipeg and Manitoba winters to reside in Los Angeles, Cal., where Dr. Portigal will practice as an Internist.

Deer Lodge Hospital's loss will be Grace Hospital's gain when our old friend Bob Whitehead makes the move on March 1st. The staff and patients of D.V.A. are beginning to look forlorn already. Good luck, Bob.

I was interested in the report from Ninette Sanatorium where Dr. Elizabeth Kalesnichenko, a fully qualified M.D. was discovered working as a P. domestic. She was immediately transferred to the Medical Staff. I wonder would any of us be given the same recognition in Russia?

The Senior Service apparently as usual is leading in activity. Surgeon Lt.-Cmdr. G. S. Fahrni and Surgeon Lt. K. G. S. Davidson are slated to attend the special course at the U.S. Naval Medical School, Bethesda, Maryland, in April, I believe.

Dr. and Mrs. Bjorn Jonsson also announce the birth of a son on February 5th, 1949.

The next meeting of the Manitoba Medical Women's Branch of the Federation will be at the University Women's Club on March 16th. The Undergraduates will be guests and expected to participate in the programme in "Abstracts from Medical Journals." Capacity attendance is looked for.

On Feb. 4th, at All Saints Church Chapel, Dr. Nancy Mathers, daughter of Mr. and Mrs. Frank Mathers, and Dr. John P. Gemmell, son of the late Dr. and Mrs. John Gemmell, Assiniboia, Sask., were married. Dr. Ruth Grahame and Dr. Robert L. Cooke were the attendants. Following the reception at the Fort Garry Hotel, the young couple left by plane for Bermuda. Yes, Bermuda, while we shiver and shovel.

Another marriage of interest, on February 5th, was that of Miss Gladys Oien and Dr. Dan. R. Bigelow, younger son of Dr. and Mrs. Bigelow, Brandon, Man. The wedding reception was held at the P. & B. Women's Club. Following their wedding trip to Minneapolis and Rochester, Dr. and Mrs. Bigelow will reside in Brandon.

Dr. and Mrs. Jean M. Huot announce the arrival of Gerard Francois Joseph, on January 29th, 1949.

Dr. and Mrs. H. W. Bottomley announce the birth of a son on January 21st, at the Winnipeg General Hospital.

Dr. and Mrs. A. G. Henderson also announce the birth of Marion Jean, in January, 1949. A baby sister for Douglas Norman.

May we extend our sincere sympathy to Mrs. Gordon Chown, family and hundreds of friends on the sudden loss of our old friend, Dr. Gordon Chown. He will be sadly missed, both in Medical and Social circles.



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## ARTICLES

### Just Thirteen Degrees Above the Equator Lies an Island

H. C. Hutchison

Just thirteen degrees above the equator lies the island of Barbados, far out on the edge of the Caribbean sea, where I was destined to spend five years of my life.

Shipping on one of the C.N.R. "Lady" boats from Boston, one is in for a delightful ten days' journey down to the islands with several hours to spare at the more important islands en route. The first land to be sighted is Bermuda where generally the boat ties up overnight, and where a horsedrawn carriage may be hired to give one a view of this surpassingly beautiful island. The absence of motor driven vehicles is one of the attractions here.

Leaving this gem, the boat heads southeast and continues toward two small but important islands called Nevis and St. Kitts. The route towards these brings one in sight of the French islands of Martinique and Guadeloupe. It will be recalled that Martinique was the scene of a volcanic eruption in the early part of the century when over thirty thousand people were wiped out in a ten-minute interval. St. Kitts, which lies within sight of Nevis, is a low island and seems to have continuous rainy weather, this impression no doubt being due to the low-hanging clouds which hover overhead. Here there is no dock and the boats anchor about a half mile from the shore and one must go in by motor launches which come out to meet the ship. Several hours ashore will repay the visitor for his trouble, for this little island was the scene of many battles between the French and the British for the possession of the island. The next major stop is St. Lucia where there is a harbor and it was in this harbour that the U-boat torpedoed, though not fatally, the SS. *Rady Nelson* during the latter part of the late war. Here the ship ties up to the dock and one steps ashore. What a queer place is this tropical world where people do not have glass windows in their houses but instead seem to have a kind of horizontal shutter; where the drains are not underground but are a sort of paved gutter at the side of the roadway, and over which little bridges permit the people to cross. What a different picture when nine out of every ten people are colored to some degree and where the trees not only have leaves but flowers as well. But enough of St. Lucia for it is only a night's run to Barbados and our destination. Next morning when one awakes, the first thought is to look out of the porthole to see if land is in sight. Sure enough there is the

island, looking very verdant in the bright sunlight. The town of Bridgetown seems to lie at the edge of a saucer depression on the island and the rim of the saucer is formed by hills in the background. I was amazed to learn that this little ham-shaped island measures only fourteen miles by twenty one. Just how it could support a population of over two hundred thousand souls I could not see.

After seeing the immigration people in the salon, we went ashore in a launch and passed through the customs. There I was met by the Superintendent of the General Hospital and driven to my quarters in the hospital grounds. Curious as I was about the place and the people, they too seemed to be curious about me. Every window was filled with a smiling brown face. Later I was to come to know these colored people better and to appreciate the fact that their happiness, their anger and their tears were very close to the surface and these emotions were readily shown.

A colored servant had been engaged before my arrival and a minimum of groceries were in the house so I had the usual Badian ten o'clock breakfast. Two of the English nursing sisters arrived to express their welcome and inform me of my hours of duty in the casualty and the anaesthetics which were in use in the hospital. Ether and Ethyl Chloride seemed to be the standard though there was an English gas machine and nitrous oxide was available.

Everyone who is new here is introduced to the local society by being invited to a cocktail party. The reticence which a newcomer may feel soon disappears, because for the first fifteen minutes one is at the party, at least four small cocktails are handed out and, according to local custom, they have to be drunk at one gulp. All the doctors are very hospitable and make much of all visitors. Most of them, I found on closer acquaintance, had trained either at McGill or in London or Edinburgh.

With all the work and social life which goes on there, and there is much of it, I still felt lonely so about seven months later I was joined by my future wife. We were married in the Cathedral there. This led to a fuller social life for me.

Two recreation clubs on the island cater to the more affluent people and offered no objection to my joining them, for a consideration of course. They were both situated on the sea shore and had excellent bathing facilities. In addition to this nearly all the hotels are on the sea shore and to a large extent depend on tourist travel for their clientele.

One of the most vivid recollections of the place which I have is that of being called to the Casualty, to find an elderly white man with his throat cut

from ear to ear, and just gasping his last. His trouble had been too much rum over a long period of time. Another memory which comes to mind is what took place one afternoon when my wife was having a bridge party, with sundry of the local ladies present. The road to the casualty ran by the house which I occupied. This afternoon a police car driven by a police sergeant drove in and in the back of the car was a drunken police officer standing with two other officers holding onto his legs to keep him in the car. All were black as the ace of spades. Once in the casualty the drunk one proceeded to divest himself of all his clothing, then relieved himself on the floor. Spying one of the prettier colored nurses he commenced to chase her about the casualty. His comrades refused to restrain him for his rank was above theirs, so by the deft wielding of a chair, I was able to bring him low and with a little encouragement from me they proceeded to truss him up. Morphine and Hyoscine then effectively subdued him. I was very much afraid that I had definitely made enemies amongst the colored people, but the next day when I went to see him he was very pleasant to me, and that day when I drove down town every policeman on point duty saluted me!

English cars and small ones seem to be the order there and a small open car was my choice. As a matter of fact the narrow streets make it very difficult for the larger cars to turn some of the corners and in addition the fact that there is only roadway and no sidewalk, means that it is very easy to run down one of the crowd with a large car.

Once each year each officer of the hospital gets a twenty-eight day leave and the usual custom is to rent a house on the seaside and there spend the month. Three types of bathing are available for the island is almost entirely surrounded by beaches. On the windward side the long Atlantic breakers tumble one about in the surf and here one may ride the waves into the dry beach. On the southern beaches the waves are not so strong, but still may give one a good pummelling. And on the leeward side the water is quiet as a millpond. It is a Barbadian custom for a group of four or five persons to stand around in the warm water gossiping and talking, and perhaps eating a mango or two, then after leaving the water, and if it be Sunday when no work is done, an egg flip, followed by a big breakfast and a siesta seems indicated.

Much of the time of the white ladies on the island seems to be taken up with bridge, at which servant problems, children, and gossip is freely indulged in. We knew a lady who had her afternoons booked up for two months ahead for bridge. Some of the more energetic people go in for golf

and there is a very fine nine-hole course. The three picture shows on the island show pictures before they have come to Winnipeg.

A great many people play tennis, of course, but water sports, in the form of bathing or sailing are most generally enjoyed. The Sunday afternoon or the moonlight bathing picnic were favorites of ours. We had indulgent friends who own a lovely spot on the coast and who gave us a *déjeuner à la blanchette* as regards picnics there. Amongst the pleasant memories are recollections of many evenings on that beach—relaxed after a swim with the breakers and the inner man replete with rum punch and savoury stew. The palm fronds rattled their fronds over us and the ghostly rustled on the sand around us. It is truly a memory which will surely take us back again.

Historically this little island differs from the surrounding ones in that it has always been British. While the others were changing hands between French, Dutch and Portuguese, the loyalty of the settlers here held this small piece of land the title of crown colony. As a matter of fact the second oldest one in the British Empire the first being Newfoundland. The descendants of the original Irish settlers are still in the interior of the island and they go under the name of Redlegs. They have isolated themselves from others and have intermarried a great deal. I recall one who became a patient in the hospital for some time on account of trouble. We found that we could not give him a bed near a window for he became very frightened of the great amount of traffic passing. It was with great joy that he was given his discharge and permitted to return to his lonely home.

One always thinks of the tropics as very hot. I did not find this so. To be sure in the warm part of the year, the thermometer went as high as 88 degrees but it also went as low as 60 degrees. And while the climate was a little more humid than it is in Winnipeg, this was partially compensated by the fact that there was always a steady trade wind blowing from the Atlantic. This climate is as close to a constant ideal as can be found in this world.

The medical set up dates back to the nineteenth century. The whole island is divided into parishes and each parish has an almshouse. Each parish also has a doctor who is paid by that parish and in addition also collects a small fee from the colored and white patients. In the almshouses chronic patients are looked after, but of course here very little surgery is done, and all the serious cases are referred to the General Hospital in Bridgetown. In addition to the prearranged district practice, there are a number of independent doctors who make out well. In all there are about forty doctors for a population of over two hundred thousand people.



The government is of the two-chamber type and is by election in the lower house. The upper house is appointed on recommendation by the governor, who is a titled gentleman sent out from England. Great enthusiasm is evinced by the population near voting time and the celebrations afterward are often damp and noisy.

In the foregoing paragraphs I have endeavoured to draw your attention to many of the salient points of this picturesque little land where a happy time of my life was spent, in the hope that some of you may want to make the trip there to see for yourselves, and also on the chance that some of you may have the thousand dollars that would be required to take you and your wife there and come again.

## REMEMBER

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589

# **Department of Health and Public Welfare** **Comparisons Communicable Diseases — Manitoba (Whites and Indians)**

DISEASES	1948		1947	
	Jan. 2 to Jan. 29, '49	Nov. 28 to Dec. 31, '48	Dec. 28, '47 to Jan. 24, '48	Nov. 30, '47 to Dec. 27, '47
Anterior Poliomyelitis .....	0	4	0	3
Chickenpox .....	160	433	184	213
Diphtheria .....	3	5	2	8
Diphtheria Carriers .....	1	0	0	1
Dysentery—Amoebic .....	0	0	0	0
Dysentery—Bacillary .....	0	3	0	0
Erysipelas .....	3	6	3	2
Encephalitis .....	0	0	0	0
Influenza .....	5	5	1	3
Measles .....	350	485	15	47
Measles—German .....	5	0	10	9
Meningococcal Meningitis .....	1	0	0	1
Mumps .....	148	249	110	88
Ophthalmia Neonatorum .....	0	0	0	0
Pneumonia—Lobar .....	5	14	7	6
Puerperal Fever .....	0	0	0	0
Scarlet Fever .....	16	24	11	10
Septic Sore Throat .....	0	3	0	1
Smallpox .....	0	0	0	0
Tetanus .....	0	0	0	0
Trachoma .....	0	0	0	0
Tuberculosis .....	15	240	17	96
Typhoid Fever .....	0	0	0	0
Typhoid Paratyphoid .....	0	0	0	0
Typhoid Carriers .....	0	0	0	1
Undulant Fever .....	0	0	0	0
Whooping Cough .....	5	7	56	84
Zonorrhoea .....	97	143	91	99
Yphilis .....	37	61	38	34
Diarrhoea and Enteritis, under 1 yr.	6	10	6	7

Four-Week Period January 2 to January 29, 1949

DISEASES (White Cases Only)	Approximate population.	743,000 Manitoba	806,000 Saskatchewan	3,825,000 Ontario	2,962,000 Minnesota
Anterior Poliomyelitis .....					15
Chickenpox .....	160	389	3649		
Diarrhoea and Enteritis .....	6				
Diphtheria .....	3		17	11	
Diphtheria Carrier .....	1	1			
Dysentery, Amoebic .....				3	
Dysentery, Bacillary .....		1			
Erysipelas .....	3	2	4		
Infectious Jaundice .....			8		
Influenza .....	5		40	1	
Malaria .....				4	
Measles .....	350	320	937	71	
Measles, German .....	5	7	72		
Meningococcal Meningitis .....	1	2	5	4	
Mumps .....	148	152	1163		
Pneumonia, Lobar .....	5				
Scarlet Fever .....	16	15	330	313	
Septic Sore Throat .....			2		
Tuberculosis .....	15	26	117	37	
Typhoid Fever .....			4		
Undulant Fever .....		11	4	13	
Whooping Cough .....	5	36	119	13	
Zonorrhoea .....	97		252		
Yphilis .....	37		169		

## DEATHS FROM REPORTABLE DISEASES

For Four-Week Period Dec. 28, 1948 to Jan. 25, 1949

**Urban**—Cancer, 10; Influenza, 1; Measles, 1; Pneumonia, Lobar (108, 107, 109), 1; Pneumonia (other forms), 1; Tuberculosis, 2. Other deaths under 1 year, 5. Other deaths over 1 year, 83. Stillbirths, 4. Total, 92.

**Rural**—Cancer, 10; Measles, 1; Pneumonia (other forms), 5; Puerperal Septicaemia, 1; Tuberculosis, 1; Diarrhoea and Enteritis (under 1 year), 1. Other deaths under 1 year, 4. Other deaths over 1 year, 43. Stillbirths, 3. Total, 50.

**Indians**—Tuberculosis, 1.

**Measles** is epidemic in Winnipeg and some rural points. In one mail recently we had a mother and ten of her children reported as cases!

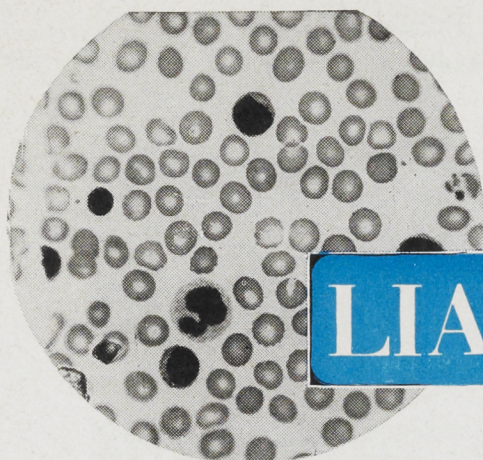
**Mumps** is also more prevalent than usual.

**Influenza**, although epidemic in Europe is only showing an average number of cases reported in Manitoba. It is realized, however, that reporting of this disease is never complete.

In general the health of the citizens of Manitoba insofar as communicable diseases is concerned, is maintaining a reasonably high level.

In comparing statistics in the above table please remember that the period November 28th to December 31st, 1948, is five weeks, whereas all others are four weeks only.





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# COLLEGE OF PHYSICIANS AND SURGEONS OF MANITOBA

M. T. Macfarland, M.D., Registrar

(Continued from February, 1949, Issue)

## Annual Meeting

### Treasurer's and Auditors' Reports

Sirs:

Your treasurer begs to submit the following report for the year ending September 30, 1948.

#### Gordon Bell Memorial Account

Acting on your instructions we have, during the year, disposed of the four \$100 bearer coupon Dominion of Canada bonds and bought one \$500 Dominion of Canada fully registered 3% bond. Bonds in the safety deposit box at the bank belonging to this account now total \$23,000 of which \$20,000 are still at 4½%. These are likely to be called in and your Finance Committee will replace them with 3% bonds when the time comes. Cash on hand and in this account as at September 30th is \$1,898.98. It is the intention of your treasurer to purchase additional bonds to bring our holding up to \$25,000 as soon as balance on hand will permit. No payments are at present being made from the interest derived from this account.

#### Investment Trust Account

Acting on your instructions there has been purchased for this account one \$5,000 Dominion of Canada fully registered 3% bond. This brings the total of bonds in the safety deposit vault to the credit of this account to \$54,000. The purchase of this bond was made possible by receiving the remaining \$3,000 repaid by the Manitoba Medical Service thus discharging the balance in full of the loan of \$5,000 made to them previously. Cash on hand and in this account as at September 30, 1948, was \$1,331.42. I would warn you against too great complacency concerning this account as the 3% earned by bonds does not equal the annual decline in the purchasing value of the dollar. I would also remind you that operating with much smaller annual expenses it was necessary in 1945 to appropriate \$9,000 from this account to balance current expenditures account for the past two years. It is hoped we can build this account up to a sum sufficient to do something worthwhile with it. In this connection I would remind you the College has no home or library.

#### The Current Account

The ordinary receipts in this account amounted to \$8,785.65 of which \$6,000 were received from registration fees alone. Total expenditures for the year amounted to \$6,376.92 leaving a balance of \$2,408.73 income over expenditure. Of this \$1,000 was transferred to the Investment Trust Account leaving a net balance of \$1,408.73.

Your treasurer has the following observations concerning this account. The annual expense of the College has increased steadily year by year and cannot possibly be carried by the annual fees of \$2.00 each. So that we depend on the registration fees of \$100 for our maintenance to a very large extent. I would remind you that the income from registration fluctuates and cannot always be depended upon. Receipts from registration were \$2,100 in 1943, \$1,200 in 1944, and \$2,200 in 1945. It is also true that the annual fee of \$2.00 paid by established practitioners and deductible from income tax has never been raised from the minimum since the College was formed and while \$2.00 was money then, it is scarcely the price of a meal now. It is also felt the College is not paying its share of the salary of the Registrar in comparison to the proportion of his time and energy devoted to it. I feel our position would be much stronger if our fixed fee were raised to the amount of \$5.00 per year allowed by the Medical Act from the beginning.

Herewith is submitted the statement of the auditors for the year.

#### PRICE, WATERHOUSE & CO.

Toronto General Trusts Building,  
Winnipeg, October 13th, 1948.

The College of Physicians and Surgeons of Manitoba,  
Winnipeg, Manitoba.

Dear Sirs.

In accordance with the instructions of your Registrar, we have made an examination of the books and records of The College of Physicians and Surgeons of Manitoba for the year ending September 30, 1948, and for your information we submit the following statements.

Gordon Bell Memorial Fund	Exhibit I
The Investment Account	Exhibit II
Current Account	Exhibit III

In connection with these statements and our examination of the records we would offer the following comments:

The investments and funds of the College as at September 30, 1948, further particulars of which are contained in the attached exhibits, may be summarized as follows:

#### Gordon Bell Memorial Fund:

Dominion of Canada Bonds (Par value \$23,000.00)	\$23,000.00
Uninvested funds on deposit with The Bank of Toronto	1,898.98
	\$24,898.98

#### Investment Account:

Dominion of Canada Bonds (Par value \$54,000.00)	\$54,000.00
Uninvested funds on deposit with The Bank of Toronto	1,331.42
	55,331.42

#### Current Account:

Balance on deposit with The Bank of Toronto as per books, September 30, 1948	4,485.27
	\$81,715.67

#### Dominion of Canada Bonds

We attended at the safety deposit vaults of The Bank of Toronto on October 4, 1948, and, in conjunction with Dr. T. H. Williams and Dr. M. T. Macfarland, examined the Dominion of Canada bonds of a par value of \$23,000.00 as shown under the heading of Gordon Bell Memorial Fund and bonds of a par value of \$54,000.00 as shown under the heading of Investment Account. All of the bonds examined by us were seen to be fully registered in the name of The College of Physicians and Surgeons of Manitoba.

Bonds purchased and sold during the year were seen to have been approved in the minutes of Council Meetings and we have examined bank advices covering the respective transactions. The purchase and sale, during the year of bonds in the Gordon Bell Memorial Fund have not, however, been approved by the Trustees of that fund. Particulars of the relative transactions together with the opening and closing balances of the investments are shown below:

#### Gordon Bell Memorial Fund:

Investments September 30, 1947	\$22,900.00
Add—Purchase of Dominion of Canada 3 per cent Victory Loan bond due Sept. 1, 1966, of a par value of \$500.00—at cost	\$ 511.85
Less—Premium on bond written off to expense	11.85
	500.00
	\$23,400.00

Deduct—Proceeds of sale of Dominion of Canada 3 per cent Victory Loan bonds due June 15, 1951, of a par value of \$400.00	\$ 411.48
Less—Premium on bonds written off to expense	11.48
	400.00

Investments September 30, 1948, per Exhibit I	\$23,000.00
---	-------------

#### Investment Trust Account:

Investments September 30, 1947	\$49,000.00
Add—Purchase of Dominion of Canada 3 per cent Victory Loan bonds due Sept. 1, 1966, of a par value of \$5,000.00—at cost	\$ 5,050.00
Less—Premium on bond written off to expense	50.00
	5,000.00

Investments September 30, 1948, per Exhibit II	\$54,000.00
--	-------------

It should be mentioned that, in accordance with the minutes of the Council Meeting of October 15, 1947, all bonds are to be carried on the books at par value.

#### Funds on Deposit

The balances on deposit with The Bank of Toronto at September 30, 1948, in the two savings accounts and the current account have been reconciled with a certificate received by us direct from the bank.

#### Receipts and Disbursements

With the exception of the funds on deposit in the current account, which account is non-interest bearing, we have seen that interest has been received on all investments and funds. In the case of the current account we have checked the stubs of receipts issued by the Registrar in connection with registration fees, certificates, annual fees, etc., against the book entries but have not taken any further steps to verify the correctness of the contributions from members of the College.

In regard to payments from the Gordon Bell Memorial Fund and the Investment Account, we have examined entries in the bank pass books and have satisfied ourselves as to the propriety of such disbursements.

Particulars of the increases in the amounts of the Gordon Bell Memorial Fund and the Investment Account during the year are as follows:

#### Gordon Bell Memorial Fund

Revenue receipts	\$ 1,004.88
Fellowship paid to Dr. Jan Hoogstraten, as authorized by the Trustees Dec. 11, 1946, at the rate of \$150.00 per month plus exchange for one year commencing Nov. 1, 1946—final payment	\$ 150.40
Premium paid on Dominion of Canada bonds purchased during the year less premium received on sale—written off	.37
	150.77
Excess of revenue receipts over disbursements per Exhibit I	\$ 854.11

#### Investment Account

Revenue Receipts	\$ 1,521.30
Amount transferred from the Current Account	4,000.00
Amount due the Current Account as at Sept. 30, 1947, written off—now treated as a transfer of funds	1,478.21
Premium paid on Dominion of Canada bonds purchased during the year—written off	50.00
Excess of receipts over expenses per Exhibit II	\$ 6,949.51

The amount of \$1,478.21 due to Current Account September 30, 1947, as shown above, was written the authority of Council as recorded in the minutes of their meeting of October 15, 1947.

With regard to disbursements from the current account we have seen cancelled cheques or other evidence of support of the items appearing in the books. As the amounts submitted relate only to cash receipts and disbursements, we have not gone into the question of any in respect of fees or liabilities outstanding as at September 30, 1948.

During the year the offices of the College and Manitoba Medical Association were amalgamated, and later paying all expenses including rent, secretaries' salaries, etc. It was therefore necessary for the Association to charge the College with its share of these expenses in this respect a charge of \$175.00 per month was effective November 1, 1947, amounting in total figure of \$1,925.00 as shown on Exhibit III. The amount of \$41.40 for rent and salary to Miss Allison of represent payments for the month of October, 1947.

During the years ending September 30, 1944 and 1945 advances from the Current Account totalling \$5,000.00 made by the College to the Manitoba Medical Association; these advances were written off as "advances" in the years in which they were made. During the year ending September 30, 1948, an amount of \$3,000.00 was received as a partial repayment of the above-mentioned advances, and this amount is shown as a separate item in the attached Current Account statement of Receipts and Disbursements. The Manitoba Medical Service Association has now repaid the full amount of the original advances.

We would again point out that Miss Allison's account is covered by the fidelity bond maintained by the College.

We shall be pleased to furnish you with any additional information you may desire in regard to the accounts.

Yours very truly,  
Price, Waterhouse

#### The College of Physicians and Surgeons of Manitoba Gordon Bell Memorial Fund

#### Statement of the Fund September 30, 1948

#### Investments

Dominion of Canada bonds fully registered in the name of The College of Physicians and Surgeons of Manitoba and carried at par:

3% Victory loan due 1951, 1 bond of \$500.00 numbered K4 Z020847	\$ 500.00
3% Victory loan due 1957, 1 bond of \$1,000.00 numbered L4 M39923	1,000.00
3% Victory loan due 1966, 1 bond of \$1,000.00 numbered P7 M56243 and 1 bond of \$500.00 numbered P7 Z73629	1,500.00
4½% Conversion loan due 1958, 2 bonds of \$10,000.00 each numbered X 4677 and X 4678	20,000.00

Funds on deposit with The Bank of Toronto

#### Accounted for

Balance of the fund October 1, 1947:	
Invested	\$22,900.00
Uninvested	1,144.87
	\$24,044.87

Increase during the year ending Sept. 30, 1948, being excess of revenue receipts over disbursements

#### Statement of Cash Transactions

#### Year Ending September 30, 1948

Balance of uninvested funds October 1, 1947

#### Revenue Account

#### Receipts:

Interest on Dominion of Canada bonds	\$ 996.00
Less—Accrued interest on bonds purchased less accrued interest on bonds sold	4.63
	\$ 991.37
Interest on uninvested funds	13.51
	\$ 1,004.88

#### Disbursements:

Balance of fellowship paid to Dr. Jan Hoogstraten	150.40
---	--------



**Investment Account**

Purchase of Dominion of Canada 3 per cent Victory loan bond due September 1, 1966, having a par value of \$500.00	\$ 511.85	
Sale of Dominion of Canada 3 per cent Victory loan bonds due June 15, 1951, having a par value of \$400.00	411.48	100.37
Balance September 30, 1948		\$ 1,898.98

**Exhibit II****The College of Physicians and Surgeons of Manitoba****The Investment Account****Statement of the Fund September 30, 1948****Investments**

Dominion of Canada bonds fully registered in the name of The College of Physicians and Surgeons of Manitoba and carried at par:		
3% Victory loan due 1957, 1 bond of \$500.00 numbered L4 Z45631	\$ 500.00	
3% Victory loan, due 1959, 4 bonds of \$10,000.00 each numbered L7 X04926-7-8 and 9 and 1 bond of \$5,000.00 numbered L7 V05687	45,000.00	
3% Victory loan due 1966, 1 bond of \$5,000.00 numbered P7 V13695, 3 bonds of \$1,000.00 each numbered P7 M103575-6 and 7 and 1 bond of \$500.00 numbered P7 Z72097	8,500.00	
		\$54,000.00
Funds on deposit with The Bank of Toronto	1,331.42	
		\$55,331.42

**Accounted for**

Balance of the fund October 1, 1947:		
Invested	\$49,000.00	
Uninvested	860.12	
		\$49,860.12
Deduct—Amount due to the Current Account	1,478.21	
		\$48,381.91
Increase during the year ending Sept. 30, 1948	6,949.51	
		\$55,331.42

**Statement of Cash Transactions  
Year Ending September 30, 1948**

Balance of uninvested funds October 1, 1947	\$ 860.12
Add—Amount transferred from the Current Account	4,000.00
	\$ 4,860.12

**Revenue Account**

Receipts—		
Interest on Dominion of Canada bonds	\$ 1,545.00	
Less—Accrued interest on bonds purchased	38.65	
		\$ 1,506.35
Interest on uninvested funds	14.95	
		1,521.30
		\$ 6,381.42

**Investment Account**

Purchase of Dominion of Canada 3 per cent Victory loan bond due September 1, 1966, of par value of \$5,000.00	5,050.00
Balance September 30, 1948	\$ 1,331.42

**Exhibit III****The College of Physicians and Surgeons of Manitoba****Current Account****Statement of Cash Receipts and Disbursements  
From October 1, 1947, to September 30, 1948****Receipts**

Registration fees	\$ 6,000.00
Temporary licences	175.00
Certificates:	
M.C.C.	\$ 260.00
G.M.C.	55.00
	315.00
Annual fees	1,429.00
Medical students registration fees	85.00
Reinstatement fee	100.00
Business tax refund re 1947	6.16
Refund of unused portion of grant made to the Canadian Medical Association 1947	
Annual Convention	675.49
	\$ 8,785.65

**Disbursements**

Salaries:	
Registrar—Dr. W. G. Campbell	\$ 50.00
Dr. M. T. Macfarland	1,150.00
Treasurer—Dr. T. H. Williams	200.00
Secretary—Miss Jean Allison	90.00
	\$ 1,490.00
Meetings:	
Annual, October, 1947	\$ 346.60
Special, May, 1948	323.30
Executive committee	84.75
Special committees	70.20
	824.85
Grant to Medical Library	750.00
Legal Fees	95.00
Amount paid to Manitoba Medical Association in respect of office rental and secretarial services, etc.	1,925.00
Office rental	41.40
Janitor's services—annual and special meetings	10.00
Insurance premiums	22.50
Auditors' fee	100.00
Printing and stationery	447.95
Postage	147.11
Expenses of Registrar re meeting in Toronto	99.70
Miscellaneous office expense	56.76
Furniture and office equipment	209.90
Exchange on cheques	12.45
General expenses	21.00
Manitoba Medical Association re expenses of extra-mural lectures	110.80
Scrutineers' fees	12.50
	6,376.92
Excess of ordinary receipts over ordinary disbursements for the year	\$ 2,408.73
Add—Amount repaid by Manitoba Medical Service Association—being final repayment of amounts advanced in prior years	3,000.00
	\$ 5,408.73
Deduct—Amount transferred to the Investment Account	4,000.00
	\$ 1,408.73

**The College of Physicians and Surgeons of Manitoba****Current Account****Statement of Cash Receipts and Disbursements  
From October 1, 1947, to September 30, 1948****Summary**

Cash in bank as per books, October 1, 1947	\$ 3,076.54
Add—Excess of receipts over disbursements	1,408.73
Balance of cash in bank as per books Sept. 30, 1948	\$ 4,485.27
Balance in bank account with The Bank of Toronto, September 30, 1948	\$ 4,500.12
Deduct—Outstanding cheques:	
Roscoe Printers Company	\$ 5.67
Roscoe Printers Company	9.18
	14.85
	\$ 4,485.27

In conclusion your treasurer requests extension for the coming year of the authority for the Finance Committee to transfer surplus funds to the Investment Trust account and to purchase bonds for Investment Trust Account and for the Gordon Bell Memorial Account when cash balance in the account concerned is deemed sufficient to do so.

Respectfully submitted,

T. H. Williams.

**Motion:** "That the Auditors' and Treasurer's reports be adopted." Carried.

## Business Arising From Previous Council Meeting

### E. Remuneration to Members of Council

Dr. T. H. Williams stated that the amount allowed to Council members is insufficient. He stated that according to the Medical Act, Section 24, "There shall be paid to the members of the council such fees for attendance not exceeding ten dollars a day, and travelling expenses not exceeding ten cents a mile one way, as may from time to time be fixed by by-law passed by the council." He also quoted from the by-laws:

"42 (a) There shall be paid to each member of the Council for attendance at meetings a fee of \$10.00, with to members outside Greater Winnipeg an additional allowance of \$10.00 per day, necessarily required for travelling to and returning from Winnipeg, and travelling expenses at the rate of Ten Cents per mile one way." and

"42 (b) There shall be paid to each member of the Council from outside Greater Winnipeg (including St. Boniface City and Norwood) attending Committee meetings, and members outside the Council when representatives on any Committee, the sum of Ten Dollars per day of attendance only, and travelling expenses at rate of Ten Cents per mile one way."

He also quoted the following motion from the minutes of a Council meeting held October 21st, 1946: "THAT city members should be paid Five Dollars each, for each committee meeting other than emergent meetings of short duration." He stated that the Registration Committee are never paid for their meetings.

Information from two sister provinces indicated higher per diem allowances than are paid to members of this council.

**Motion:** "THAT payment to all committee meetings be made the same and be paid regularly." Carried.

**Motion:** "THAT the Treasurer, Dr. T. H. Williams, Dr. A. A. Alford and Dr. J. Prendergast, be a committee to study this question and bring in a report to this meeting." Carried.

### Report of Committee Appointed to Study Remuneration to Council Members

The committee proposed the following amendments to the Medical Act and by-laws:

"That the Medical Act, Section 24, be amended to read as follows: 'There shall be paid to the members of the Council such fees for attendance and travelling expenses as may from time to time be fixed by by-law passed by the Council.'" Carried.

"That the College of Physicians and Surgeons of Manitoba by-law No. 42 (a) and 42 (b) be amended as follows:

"42 (a) There shall be paid to each member of the Council for attendance at Council meetings a fee not exceeding \$25.00 per day, with to members outside of Greater Winnipeg an

additional like amount for each day necessarily required for travel to and from Winnipeg, and travel expenses at the rate of Ten Cents per mile both ways;

"42 (b) There shall be paid to each member of the Council attending committee meetings and members outside the Council when representatives on any committee a sum not exceeding \$25.00 per day for attendance with to those outside Greater Winnipeg travel expenses at the rate of Ten Cents per mile both ways." Carried.

### Business Arising From the Treasurer's and Auditors' Report

(1) In their report, the Auditors noted that motions concerning the Gordon Bell Memorial Fund, passed at the Annual Meeting of the Council on October 15th, 1947, had not been approved by the Trustees.

The motions were presented, signed and approved by Drs. W. G. Campbell, J. S. McInnes, Wm. Turnbull, present trustees of the Gordon Bell Memorial Fund.

(2) In accordance with the minutes of the Finance Committee Meeting held September 1948, the following Notice of Motion was submitted by Dr. T. H. Williams:

"THAT the annual fee payable by members of the College be raised to Five Dollars (\$5.00)." Carried.

(3) Dr. T. H. Williams requested extension of authority for the Finance Committee to transfer surplus funds from the Current Account to the Investment Trust Account, and to purchase bonds for Investment Trust Account and for Gordon Bell Memorial Account when cash balance in the account concerned is deemed sufficient to do so.

**Motion:** "THAT the requested extension of authority be granted to the Finance Committee to transfer surplus funds from the Current Account to the Investment Trust Account, and to purchase bonds for Investment Trust Account and for Gordon Bell Memorial Account when cash balance in the account concerned is deemed sufficient to do so." Carried.

(4) Authority was requested to pay the expenses of the President, Dr. W. F. Stevenson, to the meeting of the Registrars in Toronto in June, 1948.

**Motion:** "THAT the expenses incurred by Dr. W. F. Stevenson at the meeting of the Registrars in Toronto, be paid up to Thirty-Five Dollars (\$35.00)." Carried.

(5) **Motion:** "THAT the salary of the Registrar for the ensuing year be increased to Two Hundred Dollars (\$200.00) per month, and that the C.P. — M.M.A. Liaison Committee be informed." Carried.

(Continued in Next Issue)

# MEDICAL LIBRARY

The University of Manitoba, Faculty of Medicine

## Recent Accessions

From October, 1947, to October, 1948

(Continued From February Issue)

### General List

- alkjaer, V. Fluids, electrolytes and protein in surgery; acidosis, alkalosis, dehydration, chloro-penia, protein deficiency, anemia, shock; 2d ed. Einar Munksgaard, 1947. 163 p.
- ckerman, L. V. Cancer; diagnosis, treatment and prognosis. Mosby, 1947. 1115 p.
- driani, John. Techniques and procedures of anaesthesia. Thomas, c1947. 404 p.
- ddis, Thomas. Glomerular nephritis; diagnosis and treatment. Macmillan, 1948. 338 p.
- dvances in enzymology and related subjects. Interscience, 1941-46. vol. 1-6.
- dvances in pediatrics, edited by A. G. DeSanctis. Interscience, 1942-47. vol. 1-2.
- dvances in protein chemistry, edited by M. L. Anson. Academic Press, 1948. vol. 4.
- llen, A. H. Allen's Commercial organic analysis; 5th ed. Blakiston, c1929. vol. 7-8.
- merican Medical Association. Council on pharmacy and chemistry. Glandular physiology and therapy; a symposium. A.M.A., 1942. 571 p.
- nderson, C. G. An introduction to bacteriological chemistry; 2d ed. Livingstone, 1946. 500 p.
- ppleton, A. B. Surface and radiological anatomy for students and general practitioners; 2d ed. Heffer, n.d. 332 p.
- rey, L. B. Developmental anatomy, a textbook and laboratory manual of embryology; 5th ed. Saunders, 1946. 616 p.
- thur, M. G. Tutoring and therapy. Commonwealth fund, 1946. 125 p.
- abcock, W. W. Principles and practice of surgery. Lea and Febiger, 1944. 1331 p.
- iley, Hamilton. Demonstrations of physical signs in clinical surgery; 10th ed. Wright, 1946. 375 p.
- iley, Hamilton. Pye's Surgical handicraft; 15th ed. Wright, 1947. 668 p.
- Barach, A. L. Principles and practice of inhalational therapy. Lippincott, c1944. 315 p.
- Barborka, C. J. Treatment by diet; 5th ed. Lippincott, c1948. 784 p.
- Barcroft, Sir Joseph. Researches on pre-natal life. vol. 1, 292 p. Blackwell Scientific Publications, 1946.
- Barker, R. G. Adjustment to physical handicap and illness. Social Science Research Council, 1946. 372 p.
- Bartley, S. H. Fatigue and impairment in man. McGraw-Hill, 1947. 429 p.
- Beach, F. A. Hormones and human behavior. Hoeber, 1948. 368 p.
- Best, C. H. The living body; rev. ed. Holt, c1944. 571 p.
- Bowley, A. H. The psychology of the unwanted child. Livingstone, 1947. 112 p.
- Breed, R. S. Bergey's Manual of determinative bacteriology. Williams and Wilkins, 1948. 1529 p.
- Brodel, Max. Three unpublished drawings of the anatomy of the human ear. Saunders, c1946.
- Browne, F. J. Antenatal and postnatal care; 6th ed. Churchill, 1947. 644 p.
- Browne, O. T. D. The Rotunda hospital, 1745-1945. Livingstone, 1947. 296 p.
- Brunner, Hans. Intracranial complications of ear, nose and throat infections. Year Book Publishers, c1946. 444 p.
- Burch, G. E. A primer of electrocardiography. Lea and Febiger, 1945. 215 p.
- Burnet, F. M. Virus as organism; evolutionary and ecological aspects of some human virus diseases. Harvard University Press, 1946. 134 p.
- Cameron, H. C. The nervous child; 5th ed. Cumberlege, 1946. 252 p.
- Carnegie Institution of Washington. Contributions to embryology. Vol. 32. The Institution, 1948.
- Child Welfare League of America. Daytime care; a partnership of three professions. The League, 1946. 31 p.
- Clendening, Logan. Methods of diagnosis. Mosby, 1947. 868 p.
- Christopher, Frederick. A textbook of surgery; 4th ed. Saunders, c1945. 1548 p.

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Cole, L. G. Pneumoconiosis (silicosis), the story of dusty lungs.  
John B. Pierce Foundation, 1940. 52 p.

Compere, E. L. Pictorial handbook of fracture treatment; 2d ed.  
Year Book Publishers, 1947. 390 p.

Conn, H. J. Biological stains; a handbook on the nature and uses of the dyes employed in the biological laboratory; 5th ed.  
Biotech Pub., 1946. 346 p.

Conybeare, Sir John Josias. Textbook of medicine; 8th ed.  
Livingstone, 1947. 1170 p.

Cooke, R. A. Allergy in theory and practice.  
Saunders, 1947. 572 p.

Cornell conferences on therapy, edited by Harry Gold and others.  
Macmillan. vol. 1, 1946; vol. 2, 1947.

Cowdry, E. V. Laboratory technique in biology and medicine; 2d ed.  
Williams and Wilkins, 1948. 269 p.

Crossen, H. S. Operative gynecology; 6th ed.  
Mosby, 1948. 999 p.

Cruikshank, E. W. H. Food and nutrition; the physiological basis of human nutrition.  
Livingstone, 1946. 326 p.

Cutler, E. C. Atlas of surgical operations.  
Macmillan, c1939. 181 p.

Jameshek, William. Morphologic hematology. (Blood, The journal of hematology, special issue No. 1).  
Grune and Stratton, 1947. 200 p.

Daniels, Lucille. Muscle testing; techniques of manual examination.  
Saunders, 1947. 189 p.

Davidson, Maurice. A practical manual of diseases of the chest; 3d ed.  
Oxford University Press, 1948. 670 p.

Davison, W. C. The compleat pediatrician; 5th ed.  
Duke University Press, 1946.

Duncan, G. G. Diseases of metabolism, detailed methods of diagnosis and treatment; 2d ed.  
Saunders, 1947. 1045 p.

Eggston, A. A. Histopathology of the ear, nose and throat.  
Williams and Wilkins, 1947. 1080 p.

Ellis, R. W. B. Child health and development.  
Churchill, 1947. 364 p.

Elman, Robert. Parenteral alimentation in surgery, with special reference to proteins and amino acids.  
Hoeber, 1947. 284 p.

Endocrinology of neoplastic diseases; a symposium by eighteen authors.  
Oxford University Press, 1947. 392 p.

English, O. S. Emotional problems of living; avoiding the neurotic pattern.  
Norton, 1945. 438 p.

Evans, C. L. Starling's Principles of human physiology; 9th ed.  
Churchill, 1947. 1155 p.

Ewen, J. H. Mental health; a practical guide to disorders of the mind.  
Arnold, 1947. 270 p.

Fisher, R. A. Statistical methods for research workers; 10th ed.  
Oliver and Boyd, 1946. 354 p.

Fleming, Sir Alexander. Chemotherapy: yesterday, today and tomorrow. The Linacre lecture delivered at Cambridge, May 6, 1936.  
University Press, 1946. 39 p.

Follis, R. H. The pathology of nutritional disease; physiological and morphological changes which result from deficiencies of the essential elements, amino acids, vitamins and fatty acids.  
Thomas, 1948. 291 p.

Fletcher, Ernest. Medical disorders of the locomotor system, including the rheumatic diseases.  
Livingstone, 1947. 625 p.

Freeman, W. J. Psychosurgery; intelligence, emotion and social behavior following prefrontal lobotomy for medical disorders.  
Thomas, 1942. 337 p.

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#### Regulations

- (1) The Library Committee wishes it understood that the Closing Hour of 10 p.m. will be strictly adhered to;
- (2) All Reading Room facilities available to Physicians and Students;
- (3) The Student on duty will assist in looking up subjects in the Quarterly Cumulative Index Medicus for the last ten years;
- (4) If previous references are required they should be obtained during the regular library hours (9 a.m. to 5.30 p.m.);
- (5) The Stackrooms will NOT BE OPEN.

The Medical Library Committee.

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